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Census of Converted Paper Products: 1933

Wage-Earner Employment in the Industry Increased Rapidly During the Spring and Summer of 1933 and Decreased in the Fall But Remained at a Much Higher Level in December Than That Recorded for June—Total Value of Converted Paper Products in 1933 Was $579,735,013 Compared with $634,666,905 for 1931

Wage-earner employment in the manufacture of converted paper products (exclusive of those made in paper mills) increased rapidly during the spring and summer of 1933 and decreased somewhat in the fall, but remained at a much higher level in December than that recorded for June, according to a preliminary report compiled from data collected in the Biennial Census of Manufactures taken in 1934, released today by Director William L. Austin, Bureau of the Census, Department of Commerce. The figures for the final months of the four quarters of the year show 79,503 wage earners on the pay rolls in March, 85,116 in June, 11,979 in September, and 95,582 in December.

The total value of products made by establishments engaged primarily in the manufacture of converted paper products in 1933 amounted to $477,088,593 (at f. o. b. factory prices), as against $520,921,231 reported for 1931 (the last preceding census year). The total value of converted paper products manufactured in 1933, including those made as secondary products by establishments engaged in other lines of manufacture (principally paper mills), amounted to $579,735,013, as against $634,666,905 reported for 1931. (See Table 3.)

Tables 1 and 2 present summary and wage-earner statistics for the seven industries composing the Converted Paper Products group, and Table 3 gives detailed production statistics. All figures for 1933 are preliminary and subject to revision.

(Continued on Page 28)

To Open Government Paper Bids Feb. 25

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., January 9, 1935—Bids will be opened by the Government Printing Office on February 25 for a three months' supply of paper for the period beginning April 1. Awards will be made on March 4. At the last opening paper was bought for a six months' period. Details are not yet available.

TABLE I.—SUMMARY FOR CONVERTED PAPER PRODUCTS INDUSTRIES: 1933 AND 1931

Industry	Census year	Number of establishments	Wage earners (average for the year) [1]	Wages [2]	Cost of materials, containers, fuel, and purchased, electric energy [3]	Value of products [3]	Value added by manufacture [3]
Converted paper products, aggregate	1933	1,916	89,082	$73,647,958	$260,983,517	$477,088,593	$216,105,076
	[4] 1931	2,069	89,186	89,935,667	271,005,073	520,921,231	249,916,158
Bags, paper, exclusive of those made in paper mills	1933	96	7,665	5,812,998	29,295,537	49,379,367	20,083,830
	1931	95	6,836	6,422,669	33,426,725	54,290,800	20,864,075
Boxes, paper, not elsewhere classified	1933	1,104	47,220	37,613,844	126,325,719	223,004,260	96,678,541
	1931	1,214	46,722	44,085,214	113,251,004	217,871,622	104,620,618
Cardboard, not made in paper mills	1933	12	492	451,880	1,405,576	2,793,437	1,387,861
	1931	12	520	598,742	1,656,009	3,593,766	1,937,757
Card cutting and designing	1933	64	1,804	1,534,938	4,029,475	10,137,700	6,108,225
	1931	72	2,041	2,407,951	6,673,843	15,953,282	9,279,439
Envelopes	1933	163	7,981	6,754,947	15,917,974	33,895,511	17,977,537
	1931	162	8,924	9,658,173	22,452,160	46,943,261	24,491,101
Wall paper	1933	39	3,239	3,115,690	6,851,079	15,799,514	8,948,435
	1931	50	3,734	3,933,949	9,150,312	20,194,112	11,043,800
Paper goods not elsewhere classified	1933	438	20,681	18,363,661	77,158,157	142,078,804	64,920,647
	[4] 1931	464	20,409	22,768,969	84,395,020	162,074,388	77,679,368

[1] Not including salaried officers and employees. Data for such officers and employees will be included in a later report. The item for wage earners is an average of the numbers reported for the several months of the year. In calculating it, equal weight must be given to full-time and part-time wage earners (not reported separately by the manufacturers), and for this reason it exceeds the number that would have been required to perform the work done in the industry if all wage earners had been continuously employed throughout the year. The quotient obtained by dividing the amount of wages by the average number of wage earners can not, therefore, be accepted as representing the average wage received by full-time wage earners. In making comparisons between the figures for 1933 and those for 1931, the possibility that the proportion of part-time employment was larger in one year than in the other should be taken into account.

[2] Profits or losses can not be calculated from the census figures because no data are collected for certain expense items, such as interest, rent, depreciation, taxes, insurance, and advertising.

[3] Value of products less cost of materials, containers, fuel, and purchased electric energy.

[4] Revised.

Fox River Valley Paper Mills Report Gains

Volume of Sales and Tonnage During 1934 Materially Exceeded Preceding Year's Record—Some Mills Enjoyed Best Year Since Economic Slump—Confidence Expressed In Further Improvement In 1935—Production Averaged 70 to 80 Per Cent of Capacity

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., January 7, 1935—With hardly an exception, paper mills in the Fox River Valley report gains in sales and production during the year 1934, and confidence of further improvement in 1935. The manufacturers sense a better business atmosphere in general, and a further upturn in paper production with it.

Some mills found 1934 their best year since the economic slump. In a few instances, mills which customarily shut down for two weeks during the holidays were obliged to maintain continuous operation to keep abreast with orders on hand. Production as a whole averaged from 70 to 80 per cent of normal capacity. Employment increases were reported by almost all of the mills, but these were occasioned largely by the NRA demand to reduce hours so as to spread work. Some payrolls, however, were increased as much as 25 per cent.

Gains have been devoid of any sensational aspects. Orders remained steady and showed gradual increases during the first six months of the year. There was a mild recession in the third quarter, and another slow climb in the last quarter. The spring season looks favorable, because jobbers are showing an inclination to go into the market more heavily, and in general they exhibit a much better feeling.

All agree that there appears to be a gain in restored confidence and that there will be no recessions in 1935. A few lines have been affected adversely by low tariffs and heavy imports of foreign papers, and therefore experienced an unsatisfactory year. The efforts at price stabilization have had a wholesome effect among both manufacturers and jobbers and have cushioned one of the worst factors to be contended with in a market that lacked profit volume. Any reasonable increase in volume in a strengthened market will improve the fiscal condition of the mills in 1935.

Adhawagam Had Satisfactory Year

Although the tonnage was reduced in 1934, the Adhawagam Paper Products Company, Wisconsin Rapids, Wis., converters of heavy papers into a diversified line, has had a satisfactory year of operations, according to Frank R. Walsh, manager. Selling prices have been more favorable on the average, and the company has been able to avoid the low prices of 1933.

There has been a good demand for solid fiber and corrugated boxes, paper mill cores, mailing tubes, folding cartons and other products of the plant. Improved selling prices have made it possible to pay better wages and pay better prices to the Consolidated Water Power and Paper Company, which supplies its raw materials. The company's payroll is the highest it has ever been.

"It is difficult to make a prediction for 1935," says Mr. Walsh. "The contracts we have made recently seem to indicate that the first quarter should compare favorably with the same period of 1934."

New Equipment Inquiries Frequent

Numerous inquiries for new equipment during the last few weeks, the apparent outgrowth of improvement in the paper industry, presage improved business for the equipment plants, in the opinion of T. W. Olson, vice-president and sales manager of the Nekoosa Foundry and Machine Works, Inc., Nekoosa, Wis. "We expect conditions in our own business to be much improved during 1935," he said. The showing for the year 1934 was not particularly good, thus prolonging the quiet situation which has prevailed, and has been typical of the durable goods industries. Mills which formerly spent as much as half a million dollars a year on repairs, alterations and replacements have been keeping expenditures at a minimum over a long period, and it is believed they are coming back into the market for much needed services and materials.

Sensenbrenner to File Appeal

Following a decision by Judge Fred Beglinger in the circuit court at Oshkosh, Wis., on motions after verdict, F. J. Sensenbrenner, president of the Kimberly-Clark Corporation, Neenah, Wis., has announced he will file an appeal with the state supreme court as defendant in a suit brought by Mrs. Lois Thom Nichol. The judge affirmed the verdict rendered by a jury ordering Mr. Sensenbrenner to pay Mrs. Nichol $22,500. She sought to recover that amount as representing the loss she alleged she suffered in disposing of 100 shares of Kimberly-Clark stock to Mr. Sensenbrenner. She claimed that in dealings through a broker fraud and deception were used by not informing her of the true value of the stock. Judge Beglinger ruled, however, that the evidence fell far short of proving fraud. A new trial was denied by the judge, based on the contention the jury was prejudiced.

News of the Industry

Installation of a new concrete floor has been started in the water power plant of the Interlake Pulp and Paper Company, Division of the Consolidated Water Power and Paper Company at Appleton, Wis. The work necessitates erection of a coffer dam, and removal of some of the power machinery. About seven weeks will be required for the job, and the improvement is estimated to cost $12,000. Thomas Utegaard, engineer of the Consolidated staff, is in charge.

Imposition of tolls amounting to $54,641 on fourteen paper mills and other companies along the Wisconsin River is announced by the Wisconsin Valley Improvement Company, the co-operative company which controls the dams and regulates the water flow. The tolls cover the last six months of 1934, and represent a fair return on the investment. The schedule has been submitted to the Wisconsin Public Service Commission in accordance with regulations, and a hearing has been scheduled in case any company objects to the amount designated.

More than 100 men are now employed on the rebuilding of the lock on the Fox River at DePere, Wis. It will be in the same location as the one now in use, and will be completed during the winter of 1935-36. The project will cost $80,000.

All areas in the Hiawatha National Forest in upper Michigan are now accessible for fire protection. The U. S. forest service has completed construction of 125 miles of road, and the surfacing of 18 miles. Large hunting parties of sportsmen and forestry employees are now be-

ing held to kill off rabbits responsible for injury to young trees.

The meeting of the board of trustees of the Institute of Paper Chemistry of Appleton, Wisconsin, scheduled in New York City January 11 has been postponed. A date for the session will be determined later.

James Corcoran of Webster, Wis., well known as a pulpwood operator, was elected last week as chairman of the Democratic state central committee for Wisconsin. He also is a member of the Wisconsin Conservation Commission.

Wood Pulp Bills Introduced in House

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., January 9, 1935—Two pulp bills have been introduced in the House, both of which have been referred to the House Committee on Ways and Means. One was introduced by Representative Bland of Virginia, "to prohibit the importation of pulpwood, wood pulp, or any wood susceptible of use in manufacturing paper" and the other by Delegate Dimond of Alaska "to raise revenue by taxing certain wood pulp and pulpwood and manufactured products thereof."

The Bland bill is as follows: That the importation of all pulpwood, wood pulp, or other wood susceptible of being used in the manufacture of paper is hereby prohibited.

SEC. 2. The provisions of this Act shall be deemed to be a part of the Tariff Act of 1930.

Following is the Dimond bill: That section 601 (c) (4) of the Revenue Act of 1932 is amended by inserting before the period at the end of the first sentence thereof, the following: "Pulpwood, $2 per cord of one hundred and twenty-eight cubic feet; unbleached chemical wood pulp, $7.50; and bleached chemical wood pulp, $10 per short ton; mechanically ground wood pulp, $4.50 per short ton: *Provided*, That any products manufactured from ground wood pulp or chemical wood pulp shall pay a tax based on the tonnage of ground wood pulp or chemical wood pulp used in their manufacture, at the rate above specified with respect to certain ground wood pulp and chemical wood pulp; except as to products composed of ground wood pulp or chemical wood pulp against which a tax or duty is otherwise imposed."

Kraft Paper Division of Paper and Pulp Industry Submits Additional Budget Estimate

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., January 9, 1935—Objections or suggestions concerning the proposed $34,634.43 budgetary contribution of the kraft paper division to the central paper and pulp industry code authority for the period from December 1, 1933, to November 30, 1934, must be filed with NRA Deputy Administrator W. J. Brown, before January 16.

A budget amounting to $72,000 had been submitted earlier, but no provision was made for the amount to be paid to the central Code Authority treasury.

The total amount of the budget is $106,634.43. The basis of contribution is:

"At the rate of $0.09 per ton of kraft paper shipped during the previous month. The basis of assessment for this division's contributive share to the paper industry budget shall be at the rate of 7/100 of 1 per cent of total dollar volume of sales in the division during the calendar year 1933."

NRA Approves Procedure Plans for Practice Complaints

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., January 7, 1935—NRA has announced approval of organization and procedure plans for the following trade practice complaints committees:

Set-Up Paper Box Manufacturing Industry—Wm. P. Datz, Jr., Datz Manufacturing Company, Philadelphia; R. H. Ritchie, W. C. Ritchie & Company, South Chicago; D. H. Dillard, Old Dominion Box Company, Lynchburg, Va.; Howard P. Beckett, Philadelphia, Code Authority secretary; J. A. Garvey, Dennison Manufacturing Company, Framingham, Mass.; and Walter E. Trum, E. J. Trum, Inc., Brooklyn, N. Y.

Food Dish and Pulp and Paper Plate Industry—G. A. Vradenburg, Champion No-Leak Paper Dish Company, Toledo, Ohio; E. F. Ahearn, John M. Hart Company, Inc., New York City; W. H. Arthur, Beach & Arthur, Inc., Indianapolis, Ind.; N. G. Begle, Berst-Forster-Dixfield Company, New York City; R. E. Rutledge, Sutherland Paper Company, Kalamazoo, Mich.; and M. B. Wallace, Jr., Steele-Wallace Corporation, St. Louis.

Glazed and Fancy Paper Industry—H. F. Bergstresser, Wyomissing Glazed Paper Company, W. Reading, Pa.; F. C. Heywood, The Marvellum Company, Holyoke, Mass.; A. G. Post, National Coated Paper Corporation, Pawtuckett, R. I.; John MacLaurin, MacLaurin-Jones Company, Brookfield, Mass., and V. E. Nunez, Nashua Gummed and Coated Paper Company, Nashua, New Hampshire.

American Writing Gets U. S. Decision

BOSTON, Mass., January 7, 1935—Judgment for the American Writing Paper Company, Inc., in a suit against it by the Holyoke Water Power Company concerning payment in gold for water power, was made in an opinion by Judge Hugh D. McLellan today in Federal Court. The matter involved was the price of gold during the time the service contracted for was rendered.

The power company contended that that contract implied payment at the rate of the gold price in the London market as of January, 1933, when gold was listed at $32.67, making a total they claimed due of $32,034.

The defendant maintained that payment was due in amount of $20,887, or at the rate set in January, 1934, by the Secretary of the Treasury, $20.67, a view concurred in by the court.

"The court based the price of $20.67 on the Executive Order of January 17, 1934, which fixed the price which the Government will pay for gold required to be delivered to them."

Crystal Tissue Plans Improvements

[FROM OUR REGULAR CORRESPONDENT]

MIDDLETOWN, Ohio, January 7, 1935—The Crystal Tissue Company, manufacturers of tissue and waxed paper, is to make improvements in 1935, including the erection of a new water tank, installation of modern ventilating equipment, reflooring the old mill and relocation of the converting departments in the portion of the old mill which was completely rebuilt and modernized several years ago. The improvement will all be made because of the company's confidence in the general uptrend during 1935. The company will spend $50,000 in the repair and construction program.

Chicago Paper Mill Representatives Optimistic

Pre-Inventory Dullness Less Noticeable Than In Former Years—Demand for Various Standard Grades of Paper Improving—Fine Paper Business Satisfactory, With Bond and Ledger Papers In Good Request—Outlook for Newsprint Paper Brighter

[FROM OUR REGULAR CORRESPONDENT]

CHICAGO, Ill., January 7, 1935—The first few days of the New Year have started in a comparatively optimistic fashion, according to Chicago paper sales representatives, jobbers and converters, who are finding considerable truth in that saying that "as trade in general goes so goes the paper industry." Pre-inventory dullness is not so noticeable as in former years and many grades of paper which a few weeks ago found demand rather light are now reporting a marked improvement in conditions. In some instances the failure of competitors to ride the business wave during 1934 are credited with being helpful to certain leaders in various lines. This may prove a marked characteristic of the local paper business during the next few months—strides forward by certain concerns profiting by a "cleaning out" of many competitors.

Locally, the fine paper business has been better, with one bond jobber reporting a Christmas trade better than any since 1929. All bond and ledger reports were similarly optimistic. The Chicago kraft market gave a better account of itself as the new year opened and some of the expected buyers came into the market. Ground woods were in better demand. Newsprint representatives were counting on that market getting gradually stronger after a year end softness. Books and covers remained about the same as last week. The paper board market expected material improvement in the next few months. Reports from the coarse paper bag industry were not quite so encouraging.

The action which involved the elimination of minimum price provisions from the waste paper code created little excitement in the Chicago area. Prices ranged downward on an average of about one dollar a ton, according to local waste paper executives, but there was little disturbing influence in this section. The price fixing effort was admittedly unsuccessful here as it was in other parts of the country with the local industry itself not particularly convinced that the plan was workable nor to the best advantage of all concerned. Adherence to the provision was contributing materially to an overstocked condition which found dealers plentifully supplied with no very strong market to work with. This situation in itself was reported as a disturbing influence probably making the market more uncertain than an open situation. When the report came into the Chicago area various grades moved in sympathy with the downward revision in the East, with mixed papers and folded news down and other items not under the provision feeling the effects of the revision.

News of the Trade

R. C. Swan, veteran pulp and paper man, who for the past three years has been acting in a more or less free lancing capacity for the Chicago sales office of the Champion Coated Paper Company, of Hamilton, Ohio and the Champion Fibre Company of Canton, North Carolina, has been selected to fill the position of manager of the Chicago sales office made vacant by the retirement of R. H. "Bob" Butterworth. The resignation of Mr. Butterworth from active sales work was announced last week. Mr. Swan has garnered a lot of experience not only in the merchandising of paper but in its manufacture during the 22 years he has spent in the business—the 22 years, incidentally, representing about all of Mr. Swan's business career to date. He is already well and favorably known to the trade and his connections in the midwest territory already well established. No further changes are to be made in the Champion Chicago organization in the Conway Building, according to Mr. Swan.

The leadership of the Conway Building as the "paper center of the middle west" receives some challenge with the announcement this week that the Central Manufacturing District of Chicago boasts of twenty-one paper and converter firms in its big territory on Chicago's southwest side. The roster includes the following: Ajax Box Company; American Waste Paper Company; Berst-Forster-Dixfield Company; Bosch Company; Chicago Carton Company; Cleary Box Company; Container Corporation of America; Emery-Carpenter Company; Evans Fibre Box Company; Globe Mills; Imperial Paper and Color Company; Master Package Corp.; Maxwell Company; Illinois Shipping Container Company; Pomeroy-Schofield Manufacturing Company; Republic Envelope Company; Rexford Paper Company; Rockwell-Barnes Company; Sefton Manufacturing Corp.; Smith Paper Company and the Union Bag and Paper Corporation.

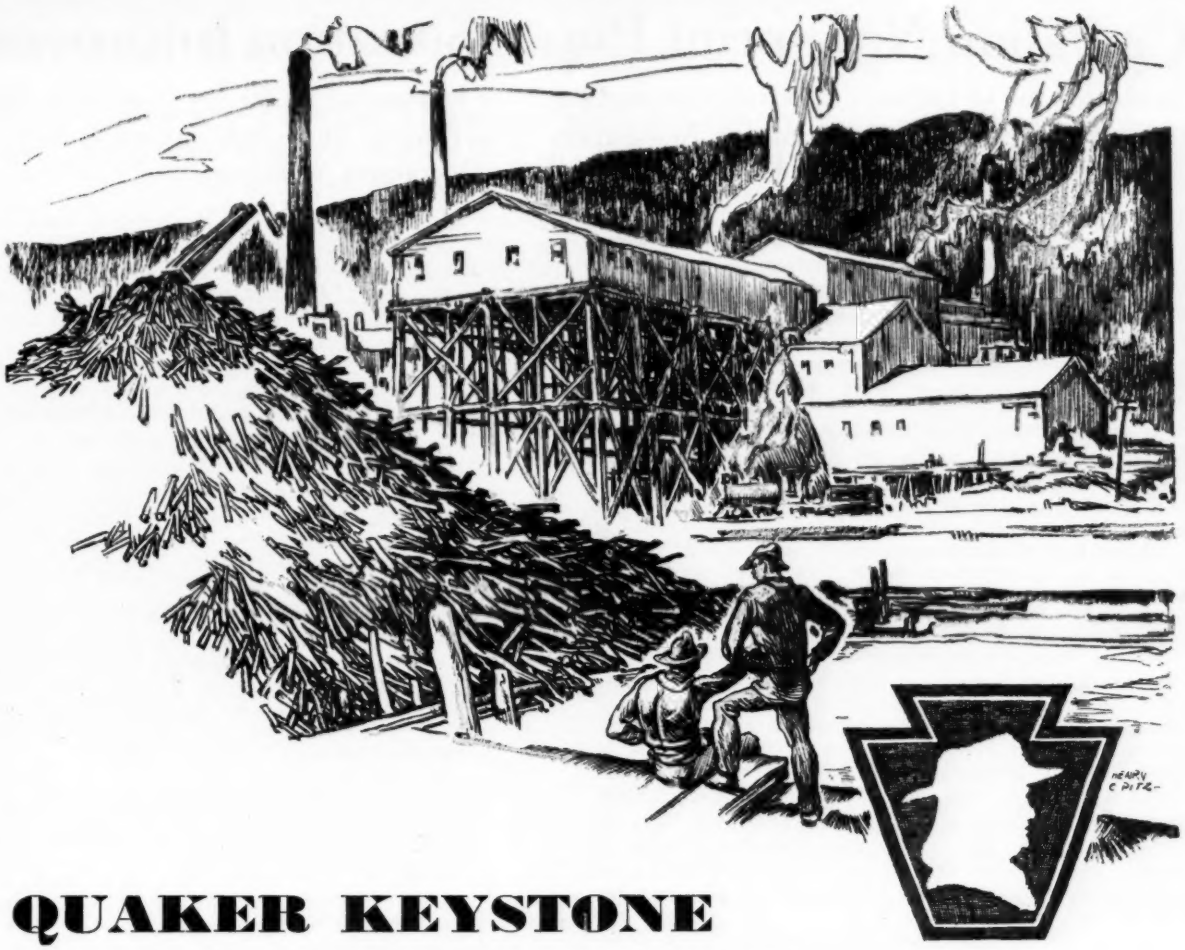
Interest in the forthcoming annual meeting of the National Paper Trade Association and all allied divisions to be held in New York City on February 18 to 22, is beginning to run high in the Chicago territory. Plans are already being made for the special train over the New York Central which is the annual means of transportation used to transport large numbers of Chicago and mid-west paper executives to the sessions. James H. Coy, Flambeau Paper Company, will again have charge of drumming up attendance on the "special" and expects to get the announcement letter out to the trade in the very near future.

The Mid-West Division of the Salesmen's Association of the Paper Industry will hold its first meeting of the new year on Monday, January 7 when discussion will get under way relative to the Association's program for 1935. Discussion of the election of officers at the New York meeting in February has already begun. Meanwhile the SAPEYES are exhibiting pardonable pride over the splendid letter written them by Reverend George Craig Stewart in acknowledgment of the traveling bag presented to the chaplain of the Association at the Christmas party on December 17.

Two Chicagoans are listed on the personnel of various trade practice committees under the National Recovery Act. R. H. Ritchie of the W. H. Ritchie Company has been selected as a member of the trade practice complaint committee for the Set-up Paper Box Manufacturing Industry and R. C. Fenner of the Vortex Cup Company has been placed on a similar committee for the Open Drinking Cup and Round Paper Food Container industry.

Waterville Pulpwood Co. Formed

The Waterville Pulpwood Company of Portland has incorporated under the State laws of Maine with capital placed at $10,000. J. F. Ryan is president and Spaulding Bisbee of Portland is treasurer of the company.



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Canadian Newsprint Paper Situation Improving

Rehabilitation of Industry Materially Assisted by Price Increase of $2.50 Per Ton, Now Effective—Several Leading Dominion Newspapers Raise Price of Their Publications to Dealers to Meet Higher Costs—Manufacturing Operations Well Sustained

[FROM OUR REGULAR CORRESPONDENT]

MONTREAL, Que., January 7, 1935—Canada has entered upon the New Year with brighter prospects than in any other year since the depression started. After fifteen months of sustained recovery, all branches of industry and both domestic and foreign commerce are on rising levels. and employment, contrary to the usual seasonal trend, is enlarging.

As regards the forest industries, they have achieved remarkable progress in the past year, especially in recent months. Exports of planks and boards were 41 per cent higher in the first ten months of 1934 than in the same period of 1933. Similarly, newsprint production has risen from 1,834,000 tons in the first eleven months of 1933 to 2,358,000 tons in the same period of 1934, an increase of 28 per cent. Employment in the logging industry was at a high point on the latest date, indicating a busy winter in the bush.

Price Increase Will Help Rehabilitation

Meanwhile an increase of $2.50 per ton has gone into effect for newsprint, and while this will not solve the difficulties with which newsprint manufacturers have been faced, it will go a long way towards rehabilitation of the industry. Several of the larger newspapers have raised the price of their papers to news dealers. Some have raised the price of two-cent papers from 12 to 16 cents per dozen, and others have raised the price of country subscriptions, these measures being looked upon as preliminary to a general rise to 3 cents per copy for papers now selling at 2 cents.

The General Situation

When Canada's trade in coin and bullion is included, as it may well be in consequence of this country's large production of gold, the total visible favorable balance of trade rose to $226,532,000 in the latest twelve month period, as against $190,841,000 in the previous twelve months and $114,227,000 in 1932.

The preliminary estimate of the value of Canadian field crops is placed at $536,498,600, being nearly $113,000,000, or 27 per cent, above the 1933 valuation, and considerably the highest figure in the past four years.

Reports of fisheries products in the past twelve months showed an increase of nearly $3,000,000 over the one of the previous year.

The value of mineral production shows a remarkable increase, gold alone having a value of $102,000,000, and total production exceeding $260,000,000, a gain of nearly 20 per cent over 1933.

Production of electric power is surpassing all previous records.

Railway car loadings and gross earnings of railways show impressive improvement, while the aggregate ocean tonnage of the five main ports of Canada showed an increase of 8 per cent in the past year.

Saving deposits in the banks are some $20,000,000 higher than at this time last year, and current loans, after a long and continuous decline, are up by some $45,000,000 in the past four months.

Total ordinary revenue of the Dominion Government for the first eight months of the present fiscal year amounted to $245,062,540, as against $216,902,271 for the corresponding period of 1933.

During the year 1934 Canada did not experience a single major industrial disturbance—an impressive demonstration of the national stability of the Dominion's industrial life.

Indianapolis Looks for Good Demand

[FROM OUR REGULAR CORRESPONDENT]

INDIANAPOLIS, Ind., January 7, 1935—With holiday and inventory, there was very little paper business transacted in this territory last week. Jobbers and manufacturers are casting up the figures for the past year. And most of them, from incomplete returns, did a lot better than they did the year before.

Inventories showed most all stocks held are very low. The last six months of this year saw the Indiana factories with a good volume of orders and production was held on an even keel with no attempt to build up large warehouse stocks. Jobbers, undecided about price trends, were wary in their buying and purchased only for immediate needs, hence their inventory also was low.

The entire trade enters the new year in an optimistic frame of mind and with immediate business in prospect, except perhaps the paper stock end of the business. Paper stock men have not fared as well comparatively as the remainder of the trade during the last six months. Mill demand has been irregular and the lower grades of paper and rags went begging with prices low.

Demand for newsprint continued well during the last week. The prospect of higher prices and an unwillingness to negotiate long time contracts, have caused many publishing companies to buy rather more heavily than they would ordinarily. Linage started off the new year in good shape and the publishers are looking for a continued business improvement. They look for nothing phenomenal, however.

Container business opened the year in good shape. These factories have had a good business for months and from all appearances there will be no dearth of orders for the first quarter of this year. Inquiries are being received in large volume, which is an encouraging feature especially when a good percentage of them result in orders, as they have done in the past year.

Fine paper business was a trifle dull last week, but a resumption in business is expected this week. Quite a bit of catalogue work remains in printers' hands.

Excerpts and Inserts

The December number of "Excerpts and Inserts," published by the Aldine Paper Company, 333 Hudson street, New York, is an unusually interesting issue filled with brief reading matter. A feature of each month's issue is a pocket on the inside of the back cover containing samples which the company believes paper buyers will care to inspect and investigate. The pocket of the December issue contains samples of Mother of Pearl which is said to be "another of the most beautiful papers ever made."

Demand for Paper Continues Brisk In Boston

New Year Opens With Favorable Volume of Orders for Various Standard Grades of Paper—Bond and Ledger Papers In Steady Request—Sulphite Bond Business Fairly Satisfactory —Wrapping Paper and Kraft Specialties Share General Improvement

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., January 7, 1935—The New Year opened for paper merchants of Boston and environs generally with a continuation of the favorable volume of orders which prevailed during the last week of 1934. The last few weeks the atmosphere has been decidedly better than that for a considerable period previously. Although collections are reported poor and inventories are being taken, with a slowness in some quarters on this account, there is a feeling in the trade that 1935 will see more prosperity among paper wholesalers than the year just passed.

Bonds and ledgers were in steady demand. Business in sulphite bonds is mentioned as fair. There were also favorable reports in regard to wrapping papers and kraft specialties. On the whole, activity was fair to good in both fine and wrapping papers. On account of increased cost of production, the price of newsprint has advanced. Effective January 1, newsprint in rolls is now quoted at $41.00 per ton delivered, compared with a former figure of $38.50. Box board remained comparatively quiet.

Business in paper stock has improved a bit since the first of the year, arousing from the comparative lethargy which prevailed for a considerable period. "The trade expects," says a dealer, "that business will be from five to ten per cent better in 1935 and that the first five months will show a gradual increase in business, with a tapering off in the summer, as usual, and a slow improvement in the fall. The year will wind up with a little more activity than the end of 1934."

Government controlled Code prices on mixed papers and folded news are no longer effective, beginning today. So much stock has accumulated in mixed papers and old newspapers that prices have weakened considerably. The code price of No. 1 mixed papers was .32½, but the price is now .20 @ .25. The Government controlled price for old newspapers was .42½ @ .45, but that likewise has declined several points to .25 @ .35. Some other grades of old papers have also declined. No. 1 old manila went down to .50 @ .55 from .65 @ .70; print manila to .40 @ .45 from .65 @ .70, print manila to .40 @ .45 from .45 @ .50, corrugated boxes to .25 @ .32½ from .32½, and screening wrappers to .45 @ .55 from .50 @ .60.

Bagging contracts are expected to be closed within the next ten days at prices prevailing at present on old burlap and gunny. Prices on contracts will be higher than those of a year ago as they have been steadily going up. The current price for domestic gunny No. 1 is 1.50 @ 1.60, for foreign gunny No. 1, 1.15 @ 1.20, for scrap burlap, 1.05 @ 1.10, and new burlap cuttings, 1.45 @ 1.50. For the week prices of bagging were unchanged. In old domestic rags, there was more demand for roofing stock, with a consequent rise in prices. No. 1 roofing stock advanced to .90 @ 1.00 from .80 @ .85, No. 2 to .75 @ .80 from .70 @ .75, and No. 3 to .60 @ .65 from .55 @ .60. In foreign rags, dark cottons advanced to 1.00 @ 1.10 from .85 @ .95. New domestic rags remained unaltered in price.

Winthrop L. Carter Optimistic

Winthrop L. Carter, president of the Nashua Gummed and Coated Paper Company, Nashua, N. H., and president of the New England Council, said in a statement issued Friday: "The New England council's index of business activity is now pointing upward. Such current statistics as are available indicate that this upward movement from the year's low in September has brought the level of activity up to or beyond the level of 1933.

"Several New England industries show definite improvement during 1934. Power production is ahead of a year ago, bank debits are 15 per cent above those of 1933, and while industrial employment will show little change, there has been real improvement in recent months. Retail sales are up.

"In the field of agriculture, prices have been generally higher and farm purchasing power therefore has been improved. New England farms suffered relatively little from drought, but have benefited from higher prices by the drought elsewhere.

"New England's third major wealth producing activity, the recreation business, has experienced a year of improvement over the conditions of 1933. The purchasing power created in New England by expenditures of our summer visitors, is a major factor in maintaining the standing of living in rural areas."

News of the Trade

The Wheelwright Papers, Inc., have opened an office in Room 317, Chamber of Commerce Building, where Ed Pierce will be located and also Charles Trefry, representing Dill & Collins Company.

The Mead Sales Company has taken space in the same office.

Miss Lillian Nelson, who has been in the printing trade in Boston a number of years, is managing the office for Mr. Pierce and Mr. Trefry. Samples of Wheelwright, Dill & Collins and Mead lines will be available.

Asaph Churchill, of 24 Milk street, was accepted as a member of the New England Paper Merchants Association at a meeting of the executive committee on Thursday.

British Production of Wood Pulp Wadding

Increased domestic production of wood-pulp wadding in Great Britain is reported to the Commerce Department by Trade Commissioner James Somerville, Jr., London.

This product, known in the British trade as cellulose wadding, was formerly obtained in large measure from Germany and the United States, it is pointed out. During the last few months, however, one of the most important British producers has completed a new plant specifically for the purpose of manufacturing cellulose wadding according to the latest requirements in type, size, color and quality.

Consumption of wood pulp wadding, Trade Commissioner Somerville's report shows, is increasing steadily in Great Britain, new uses being found for the product almost every day. As in the United States it is coming into general use for such purposes as surgical dressings, facial tissues and a variety of other uses.

With the possible exception of some types of very high quality, the report states, it is probable that domestic production will eventually be able to satisfy the total British demand for wood-pulp wadding.

Philadelphia Paper Market Exhibits Strength

Both Fine and Coarse Paper Divisions Manifest Worthwhile Improvement—Revised Book Paper Quotations for Paper Distributing Trade Announced—Lower Grades of Paper Stock Easier—Higher Grades of Waste Paper Steady, With Offerings Limited

[FROM OUR REGULAR CORRESPONDENT]

PHILADELPHIA, Pa., January 7, 1935—Strength in both branches of the paper trade was noted this week, manifesting the worth-while improvement that was experienced during the closing months of 1934.

From the office of the Philadelphia Trading Area Sub-Committee in the Drexel Building, there was mailed out to the trade under date of January 5 Bulletin No. 52 containing notice of revision of prices on book paper, as set forth in price list No. 77. This Bulletin reads as follows: "In accordance with Article VIII, Section 2, of the Code of Fair Competition for the Paper Distributing Trade, the Thos. W. Price Company have filed a revised price schedule on the following book paper items contained in Price List No. 77.

"No. 2 Groundwood English Finish, No. 2 Groundwood Super, and No. 2 Groundwood Eggshell. All other items on price list No. 77 remain as published.

"The revised schedule of prices on the above items is enclosed herewith marked Price List No. 77-A and becomes effective January 9, 1935.

"Any member of the trade may sell at these prices by filing with this office the same schedule and stating the name of the member of the trade whose price justifies its prices.

"All schedules must bear certification that they are justified under B-2 Article VIII of the Code."

Price List No. 77-A, referred to in Bulletin No. 52, is, in effect, as follows: No. 2 Groundwood English Finish —One Item—Less than Ream, $11.75 cwt., Ream to Case, $7.75 cwt., 1 to 4 Cases, $6.25 cwt. Assorted Sizes and Weights—One Grade—4 Cases to 5,000 lbs. (Minimum Item 1 Case) $6.05; 5,000 to 10,000 lbs., Minimum Item 4 Cases (4 Case Items, $5.65, 5,000 lb. Items $5.40); 10,000 lbs. and Over—Minimum Item 4 Cases—(4 Case Items, $5.45; 5,000 lb. items, $5.20; 10,000 lb. items, $5.05); 36,000 lbs. and Over—Minimum Item 5,000 lbs.—(5,000 lb. items, $5.00; 10,000 lb. items, $4.85); 36,000 lbs. and Over—One item must be for 36,000 lbs.—(One item, $4.65; 5,000 lb. item added, $4.90; 10,000 lb. item added, $4.75.) No. 2 Groundwood Super, 25 cents per cwt. additional in all brackets; No. 2 Groundwood Eggshell, 25 cents per cwt. additional in all brackets. It further says that this revision is caused by the filing of the Thos. W. Price Company and supersedes Price List 77 in respect to these particular items.

In connection with the waste paper industry, the price on mixed papers dropped from $6 a ton to $4, and on newspapers from $8 to $6 as a result of the withdrawal of the minimum price setup. Other grades are holding very well, however, existing conditions still maintain in poor demand with limited supply.

Association Activities

The annual election of officers of the Philadelphia Paper Trade Association will take place on Wednesday, January 9, at which time the Nominating Committee recently appointed by President T. H. B. Smythe, and consisting of W. B. Kilhour, Jr., president of Quaker City Paper Company, chairman; Edward A. Keller, sales manager, Garrett-Buchanan Company; Harry Lefkowith, treasurer, Simon Walter; Edward W. Hartung, secretary-treasurer, A. Hartung Company; William E. Hentz, sales manager, Thos. W. Price Company; and O. Friele, vice-president, Paper Merchants, Inc., will make known the result of their balloting for the election of the Board of Governors. The newly elected Board of Governors will hold its meeting, and immediately thereafter will elect the officers of the Philadelphia Paper Trade Association for the ensuing year.

News of the Trade

Garrett-Buchanan Company, 12 South 6th street, is making extensive alterations to its offices, which occupy the entire first floor of the company's building. After alterations are completed, which will take from three to four weeks, the bookkeeping department will be moved to the second floor, thus permitting the use of the entire first floor for the sales force and for the display of their various and diversified products.

Joe Deal, outside salesman in the Fine Paper Division of Garrett-Buchanan Company, is convalescing at his home, and it is hoped that he will be at his desk in three or four weeks.

The will of Edwin Wolf, founder of the paper products manufacturing firm of Wolf Brothers, 340 North 12th street, who died on December 16, left an estate valued at $100,000 and upward, it was disclosed during the week when his will was filed for probate. Personal effects were left to his daughter, Mrs. Blanche Kohn, and his son, Morris Wolf. The residue of the estate is to be held in trust for the son and daughter, and on their death the principal is to be distributed among the surviving grandchildren. Mr. Wolf's home was at 1517 North 16th street; he was 79 when he died.

Swedish Pulp Firm to Increase Capital

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., January 7, 1935—One of the largest producers of wood goods in Sweden has announced an increase from 1,000,000 crowns to 5,000,000 crowns in its share capital, according to a report from Acting Commercial Attache Osborn S. Watson, Stockholm. The company owns large forests in the north of Sweden and the various works have an annual capacity of 45,000 standards of sawn and planed lumber, 80,000 tons (metric ton) of mechanical pulp (wet weight), and 42,000 tons of sulphate pulp. Sales during the year 1930 amounted to 18,000,000 crowns, dropping to 13,000,000 crowns in 1931 and 11,000 crowns in 1932. The isssue of 40,000 new shares, nominal value of 100 crowns per share, will be subscribed for by the Swedish Pulp Company, the largest concern in Sweden in the pulp and softwood trade.

Simulates Hand-Made Paper

[FROM OUR REGULAR CORRESPONDENT]

HOLYOKE, Mass., January 7, 1935—The American Writing Paper Company, Inc., is manufacturing at its Beebe & Holbrook Division what is in effect a hand-made paper according to a secret process that allows of deckle edging and some watermarking of exceptional interest. In its appearance it is almost exactly like the hand-made paper. It is believed that there will be quite a demand for this paper as soon as it is put upon the market.

History of Carter, Rice & Co. Corp.

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., January 7, 1935—Hurlbut's Papermaker Gentleman, published by the Hurlbut Paper Company, South Lee, Mass., for the last few issues, has been featuring old established paper houses. The current issue contains an article in regard to Carter, Rice & Co. Corp., giving a history of the concern, as follows:

"On January 2, 1871, two venturesome young men, James Richard Carter, age twenty-one, and Frederick W. Rice, age twenty, formed a partnership and purchased the small stock and goodwill of the paper business owned by William McAdams, located at 13 Spring Lane, Boston. This event marked the beginning of Carter, Rice & Co. Corp. Mr. Carter frequently recalled in his later days that their original capital consisted of 'youth, courage, and cash, but mighty little of the latter.'

Flourishes From Beginning

"However, the business, housed in the little tumbledown establishment in Spring Lane, took root in the community of those days and flourished from the beginning, although its owners passed through some rather strenuous experiences.

"In September of the following year, soon after the enterprising young men had started, the City of Boston was nearly wiped out by fire, and in 1873 a nation-wide panic seized the country, carrying to ruin many business houses and individuals.

"By a curious twist of fate, the little store of Carter, Rice & Co. was the only paper house not burned out in the Boston fire—a most fortunate circumstance that made up, in part, at least, for the losses suffered from customers made bankrupt.

"In 1873, when the burned-out business district in Boston had been rebuilt, the partners recognized the advantage to be gained in acquiring better quarters in this locality and moved their business into a new store at 69 Federal street. Here the paper house entered a period of remarkable growth which soon made it the leader in its field, and later, compelled another removal to its present location in Devonshire street.

"In his own account of these early days, James Richard Carter has mentioned various instances of 'good fortune' in connection with the business, although an outside estimate might stress more the intelligence and hard work which, at length, placed the firm in its enviable position.

"In 1883, Carter, Rice & Co. was incorporated. At the first meeting of the corporation, Mr. Carter was chosen treasurer and manager, retaining these positions up to the time of his death. Following the death of Mr. Rice in 1885, Mr. Carter continued to hold half of the company stock and his two partners, Edward H. Palmer and George H. Lowe, one-quarter each.

Outside Activities

"As the company grew and prospered, it absorbed several concerns and was instrumental in starting others. Peter C. Jones & Son; Rice, Kendall & Co.; and Nashua Card and Glazed Paper Company were among the better known businesses taken over by Carter, Rice & Co. The various outstanding organizations which received impetus from Boston's largest paper house included the Nashua Gummed and Coated Paper Company; the National Bread Wrapping Machine Company, later absorbed by Baker Perkins Company; and the Carter, Rice & Carpenter Paper Company of Denver, Colorado.

"In the buildings of the old Nashua Card and Glazed Paper Company, the Nashua Gummed and Coated Paper Company started business in 1904. The company was the outgrowth of a small gummed paper manufacturing department, developed under the management of Carter, Rice & Co. After its plant in South Boston was burned, this manufacturing department was moved to Nashua and organized as a separate company, now the Nashua Gummed and Coated Paper Company. The National Bread Wrapping Machine Company started just before the World War. Carter, Rice & Carpenter Paper Company had its beginning in 1884, when a Carter, Rice salesman by the name of Frank S. Thayer was forced to take up residence in Colorado because of ill health. His ability and courage were commendable, and he made an excellent representative of the New England House in Denver. His success led eventually to the establishment of a regular paper house which joined with the Carpenter interests in 1904.

"Upon the death of James Richard Carter in 1923, his stock holdings in these various companies were included in a trust for the benefit of his family. His sons succeeded to his responsibilities. Hubert L. Carter took over the position of treasurer and manager of Carter, Rice & Co. Corp. He also was elected Vice-President of Carter, Rice & Carpenter Paper Company. In outside trade avtivities, he has served as president of the New England Paper Merchants Association in 1925 and 1926 and held the same office in the Boston Paper Trade Association from 1928 to 1930. Winthrop L. Carter and Eliot A. Carter became president and treasurer respectively of the Nashua Gummed and Coated Paper Company.

Merger and Reorganization

"December 1928 saw the merger of the Charles A. Esty Paper Company and Carter, Rice & Co. Corp., under the firm name of the latter—a combination retaining in personnel, in tradition, in lines, and in facilites all of the strength of the individual concerns, but combining them under one management as a sngle unit of service. Charles A. Esty became managing director of the merged companies and continued in this capacity until October, 1933, when he was elected president, the position he now holds. At the time of the merger, Hubert L. Carter continued in his position as treasurer and Frank H. Winter became sales manager and secretary.

"In addition to the large Boston establishment, Carter, Rice & Company Corporation maintains warehouses in Worcester, Mass.; Seattle, Wash.; Portland, Ore.; and San Francisco, Cal., and branch offices in Springfield, Mass.; Providence, R. I., and New York City."

The outside enclosure of the Paper Maker Gentleman is of Hurlbut's Interdeckle, a novel cut-out deckle effect. This is part of a line which the Hurlbut Paper Company carries in stock. It has proved very popular this year.

Good Business Delays Installation

HOLYOKE, Mass., January 7, 1935—Some months ago the Franklin Paper Company bought a 102 inch paper machine with which to displace their present 66 inch machine. Business has been so good with the company that the setting up of the new machine has been delayed until it slows down so that they can make stock ahead to cover the five weeks that the mill must be idle while the installation of the new machine is in progress.

Bids and Awards for Government Papers

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., January 9, 1935—The Government Printing Office has received the following bids for 5,000 pounds of oiled manila tympan paper: Reese & Reese, Inc., at 7.1 cents per pound; R. P. Andrews Paper Company, 6.19 cents; Mathers-Lamm Paper Company, 5.95 cents; Whitaker Paper Company, 6.9 cents; and Enterprise Paper Company, 7.1 cents.

The following bids were also received for 2,500 pounds of white writing paper: Whiting Paper Company, 22.6695 cents per pound; Reese & Reese, Inc., 22.6695 cents; Old Dominion Paper Company, 26.67 cents; Carew Manufacturing Company, 22.6695 cents; Barton, Duer & Koch Paper Company, 22.67 cents; and Coy, Hunt & Co., 22.6695 cents.

The Government Printing Office has received bids for 60,200 pounds of white bond paper. All of the bids were identical, namely 11.951 cents per pound from the following firms: R. P. Andrews Paper Company, Whiting Paper Company, J. W. Butler Paper Company, Aetna Paper Company, Barton, Duer & Koch Paper Company, Whitaker Paper Company, Old Dominion Paper Company, Perkins-Goodwin Company, George W. Millar & Co., Mathers-Lamm Paper Company, and Curtis & Bro. Company, Inc.

Bids were also received for 58,200 pounds of white index paper 50 per cent rag and for 11,200 pounds same another size. All firms bid the same on both lots at 11.0755 cents per pound, except Mathers-Lamm bid 11.951 cents on lot number one and the Carew Manufacturing Company bid 12.38 cents on both lots. Other firms bidding at 11.0755 included the following: Whiting Paper Company, Aetna Paper Company, Barton, Duer & Koch Paper Company, Marquette Paper Company, R. P. Andrews Paper Company, J. W. Butler Paper Company, Virginia Paper Company, Old Dominion Paper Company, Mathers-Lamm Paper Company (on lot number two); Carpenter Paper Company, American Writing Paper Company, and Walker-Goulard-Plehn Company, Inc.

The following bids were received for 10,000 pounds of gummed kraft paper: W. L. Jones, Inc., 7.35 cents per pound; United Supply Company, 7 cents less 1 per cent; Cauthorne Paper Company, Inc., 7.35 cents; Mathers-Lamm Paper Company, 7.15 cents; Reese & Reese, Inc., 7.58 cents; Walker Goulard Plehn Company, 7.25 cents, and Whitaker Paper Company, 8.24 cents.

Bids were received as follows for 850 sheets of green gummed paper: Virginia Paper Company, at $14.00 per M; Whitaker Paper Company, $15.80; and R. P. Andrews Paper Company, $15.00.

For 5,000 pounds of sulphite manila paper: Reese & Reese, Inc., at 4.9 cents per pound; and Mathers-Lamm Paper Company, 5.12 cents.

The Printing Office also received the following bids for 10,000 sheets of gray photo mount board; Mathers-Lamm Paper Company, at $37.80 per M sheets; Reese & Reese, Inc., $39.86; Whitaker Paper Company, $39.86; R. P. Andrews Paper Company, $41.00; Charles W. Speidel & Co., $41.20; Charles G. Scott & Co., $39.40; Barton, Duer & Koch Paper Company, $39.86; Hurlock Brothers Company, Inc., $39.43 less 2 per cent; Enterprise Paper Company, $37.00 less 1 per cent; George W. Millar & Company, Inc., $39.80 and Old Dominion Paper Company, $39.40.

The Government Printing Office has announced the following paper awards.

The Perkins-Goodwin Company will furnish 60,200 pounds (700,000 sheets) of 21 x 32, 50 per cent rag white bond paper at 11.951 cents per pound. Reese & Reese will furnish 5,000 pounds (46,000 sheets) of 21 x 33 sulphite manila paper at 4.9 cents per pound. The Whiting Paper Company will furnish 69,400 pounds of 50 per cent rag white index at 11.0755 cents. The United Supply Company will furnish 10,000 pounds of No. 1 gummed kraft paper at 7 cents per pound. Bids for all of these items were received on December 28.

The Aetna Paper Company will furnish 38,800 pounds (200,000 sheets) of 50 per cent rag buff index, 21 x 32½ at 11.866 cents per pound while the R. P. Andrews Paper Company will furnish 12,500 pounds (100,000 sheets) of 50 per cent rag, 20 x 25, cream white laid cover paper at 13.09 cents. Bids for these items were received on December 21.

Weekly Production Ratio Report

Reports to the Paper Industry Authority show the following Over-All Production Ratios for the designated periods.

	Reporting Mills		Total Production
	Number	Capacity	Ratio
September, 1934	292–299	.....	59.4%
October, 1934	297–375	.....	64.7%
November, 1934	375–391	.....	61.0%
*Week ending December 8, 1934	384	153,895	61.1%
*Week ending December 15, 1934	391	165,683	65.5%
*Week ending December 22, 1934	376	158,374	65.2%
†*Week ending December 29, 1934	246	82,949	52.0%

Detailed statistics showing the number of mills reporting by ratio groups are given below:

	Number of Mills Reporting			
	Week ending			
Ratio Limits	December 8, 1934	December 15 1934	December 22, 1934	December 29, 1934
0% to 50%	156	143	146	124
51% to 100%	228	248	230	122

* Subject to revision.

According to reports from the National Paperboard Association, per cents of operation, based on "Inch-Hours" were as follows:

September, 1934	62 per cent
October, 1934	63 per cent
November, 1934	56 per cent
December 8, 1934	56 per cent
December 15, 1934	57 per cent
December 22, 1934	63 per cent
†December 29, 1934	35 per cent

† Capacity and percentage data for week ending December 29, 1934 based on 5 days of 24 hours each.

Revised statistics covering delinquent mill returns will be shown in later reports.

Watertown District Optimistic

[FROM OUR REGULAR CORRESPONDENT]

WATERTOWN, N. Y., January 7, 1935—Paper manufacturers in this section are optimistic over the outlook for 1935. Clarence E. Kinne, vice-president of the Bagley & Sewall Company, is of the opinion that business will show an upward trend during 1935 and believes that the year will be better and brighter in every respect. G. S. Knowlton, president of Knowlton Brothers, looks for improvement during the year but claims that this might be a little more certain if less experiments are tried. A. S. Perkins, head of the Black River Paper Company, said that business was good in 1934 and he expects that it will be about the same this year. Indications are that 1935 may be better for business than the past year, he said.

Obituary

David Rees Bowen

David Rees Bowen vice-president of Farrel-Birmingham Company, Inc., and for forty-five years its chief engineer, died at his home at Ansonia, Conn., on Saturday, December 29, 1934.

Mr. Bowen was born in Cwmavon, Wales, October 22, 1865. He received his early education in the British National Schools and at Llandovery Collegiate School. At the age of 17 he came to the United States with his parents and in 1883 entered the employ of the Farrel Foundry and Machine Company as a machinist's apprentice.

After serving his apprenticeship for three years he worked as a machinist for two years longer, then entering the drafting room of the Farrel company. During the next ten years his exceptional ability as an engineer led to his appointment as chief engineer, a position which he held until 1930, when he was elected vice-president, in charge of engineering.

In July, 1933, ill health compelled him to relinquish active direction of engineering, when R. A. North succeeded him as chief engineer, and Mr. Bowen became consulting engineer, continuing also as vice-president until his death.

Mr. Bowen was widely known as an able engineer throughout the several fields of industry for which the Farrel-Birmingham Company builds machinery. His ability as an engineer exerted a marked influence on the design of machinery for paper mills, rubber, linoleum, plastics, non-ferrous rolling mills, sugar cane grinding, stone and ore crushing, and others.

Through the design of machinery for these industries he played an important part in their development and the extent to which his knowledge and advice were sought was indeed impressive. It may be said without exaggeration that there is not a civilized country in the world where machinery of this type is used in which the influence of Mr. Bowen's sound engineering skill is not felt.

Mr. Bowen had been a member of the American Society of Mechanical Engineers since 1899 and was affiliated with the Masonic order and with the Ansonia lodge of Elks. He took an interest in civic and community affairs, serving as alderman of Ansonia and member of the board of trustees of the Ansonia Public Library.

He was also a vestryman of Christ Episcopal Church. He was very fond of books and through his reading acquired a fund of knowledge on many subjects. He spoke the Welsh language fluently and was deeply interested in the land of his birth, to which he returned for many visits.

He is suvived by his wife, a son, daughter and two grandchildren.

Funeral services were held at his late residence on Monday, December 31, with interment at Pine Grove Cemetry, Ansonia, Conn.

Lewis F. Houpt

BUFFALO, N. Y., January 7, 1935—Lewis F. Houpt, well known paper salesman, died suddenly of heart failure recently in Barker, Niagara County. He is survived by his wife, Belle D. Houpt; a sister, Miss Adele Houpt, and a brother, Wilber E. Houpt, with whom he had an office in the Chamber of Commerce Building in Buffalo.

Mr. Houpt began his business career with the Buffalo Courier Company, a lithographing concern, as a salesman. A few years later he moved to Boston to represent Carter, Rice & Co. He worked for this company for several years before becoming manager of the Chicago office of the International Paper Company. It was through this company and a sales company he organized himself that he established his nation-wide reputation in the paper business.

In 1908 he moved back to the Niagara Frontier as president of the George Irish Company of Buffalo, in which he also held a controlling interest. He managed this company until 1925, when he gave up his interests and became the local representative of several out-of-town paper companies. He maintained an office in Buffalo with his brother for this purpose.

John C. MacDonald

PLATTSBURG, N. Y., January 7, 1935—John C. MacDonald, well known in the paper industry of Northern New York, died this week at his home here from an attack of heart trouble. He was 52 years old. He became identified with the industry early in his youth and learned the business thoroughly in several mills in the New England States. He went to Watertown in 1914 where he served as superintendent of the Continental Paper Company for many years. In 1929 he became identified with the National Paper Products Company and acted in an official capacity at plants at Camas, Washington and Carthage. For the past two years he has been employed as superintendent in the large paper mill here controlled by the Diamond Match Company. The survivors include his wife, one daughter, two brothers and a sister.

1934 Review of Cellulose Products Department of Hercules Powder Co.

WILMINGTON, Delaware, January 7, 1935 — Nitrocellulose is the chief product manufactured by the Cellulose Products Department of Hercules Powder Company. In 1934, the various types of viscosities were made to the most exacting limits of uniformity ever attained by Hercules.

Important during the year was the continued research at the Hercules Experiment Station in Wilmington to make even better nitrocellulose and to investigate new applications for it. Among these new developments, the application of lacquers to paper and cartons received unusual attention. Nitrocellulose lacquer is finding increased use in the general packaging field.

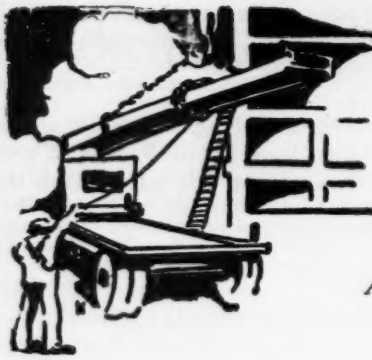
According to Hercules engineers and chemists, the future will witness a greater and greater use of nitrocellulose products.

1934 marked the evolution of Tornesit from an experimental to a commercial product. Tornesit is a chlorinated rubber base, from which can be formulated paints, emulsions, binders, adhesives, and plastics, with remarkable chemical resistance.

Hercules chemists consider it one of the most important new materials in the protective-coating industry since the discovery of nitrocellulose as a base for lacquers. Hercules' new plant for the manufacture of Tornesit in this country is nearing completion at Parlin, New Jersey.

The Hercules-made product will offer refinements in even greater uniformity, more rapid rate of solution, lighter color, and less residue than the imported product.

Tornesit has demonstrated its great resistance to acids, alkalies, and the many other corrosive elements that are destructive to protective coatings. As a base for paints to be used where corrosive elements must be combatted, Tornesit has an important use. However, indications are that it will be employed in many industries and for many more purposes than that of a specialty paint material.



CONSTRUCTION NEWS

A Summary of Vital Facts Regarding Construction, Finances and Operation of Paper Mills

Construction News

Cincinnati, Ohio—The Clopay Corporation, York and McLean streets, manufacturer of paper products, has asked bids on general contract for new one-story top addition to present plant, and will proceed with work at early date. No estimate of cost announced. Company has recently awarded building contract for a small one-story addition, to be equipped for expansion in mixing division, to the Ben Schaefer Building Company, 215 Race street, city, and construction has been placed in progress. Carl J. Kiefer, Schmidt Building, Cincinnati, is consulting engineer for both units.

Bogalusa, La.—The New Orleans Corrugated Box Company, New Orleans, La., manufacturer of corrugated paper boxes and containers, has plans nearing completion for new addition to branch plant at Bogalusa, to be used primarily for storage and distribution. Cost reported over $25,000, with equipment. I. A. Magnitzky is general plant superintendent at New Orleans mill. Walter C. George is company engineer.

Clayville, N. Y.—The Superfine Paper Mills, Inc., manufacturer of tissue paper stocks, has arranged for change in company capitalization from $150,000 to 2,000 shares of stock, no par value.

Rumford, Me.—The Continental Paper and Bag Corporation is planning rebuilding of portion of mill recently damaged by fire, confined largely to mill unit used for sulphite and wet machine equipment. Loss reported close to $12,000.

Lawrence, Mass.—The Frank C. Meyer Company, Inc., 271 Lexington avenue, Brooklyn, N. Y., manufacturer of shoe cartons and kindred paper boxes and containers, will begin alterations and improvements at once on former Katana Mill of the Monomac Spinning Company, Lawrence, recently secured under lease, as reported in these columns, and also plans construction of a one-story building for garage service for company trucks and cars. The main mill is two-story, with total of 120,000 square feet of floor space, all of which will be used by the Meyer company; in addition, there is a two-story warehouse building, totaling 40,000 square feet of floor space, and a two-story office structure. Company will carry out extensive expansion in production at new plant, where present factory at Lynn, Mass., will be removed, installing additional equipment.

Maspeth, L. I.—The Star Corrugated Box Company, Inc., Grand and Milton streets, manufacturer of corrugated paper boxes and containers, has arranged for increase in capitalization from $350,000 to $650,000, for general expansion.

Mobile, Ala.—The Kraftliner Gumming Corporation, lately organized and now operating new plant in the Magazine Point district, Mobile, for the production of gummed kraft paper products, is reported considering construction of new one-story building at plant, to include the installation of additional equipment. Arnold Jacoby is vice-president and general manager.

Cleveland, Ohio—The Weaver-Wall Company, 3700 Brookpark road, manufacturer of paper and asphalt roofing products, has approved plans for new addition to plant, to be one-story, 66x75 feet, designed for storage and distributing service. Work will be placed under way at once. Plans for structure were prepared by C. F. Gilbert, Republic Structural Iron Works, 1790 East Fifty-third street, city.

New York, N. Y.—The City Corrugated Paper Products Company, Inc., 622 West Fifty-seventh street, has filed notice of change in capital from $150,000 to $15,000.

Elizabethton, Tenn.—The American-Bemberg Company, manufacturer of cellulose rayon products, is planning early installation of new equipment in local mill, including cone-winding machinery and accessories.

Northumberland, N. H.—The Wyoming Valley Paper Mill is said to have plan maturing for rebuilding of portion of pulp mill, recently destroyed by fire, previously referred to in these columns, with loss reported at close to $75,000, including equipment. Company headquarters are at 5 Beekman street, New York, N. Y.

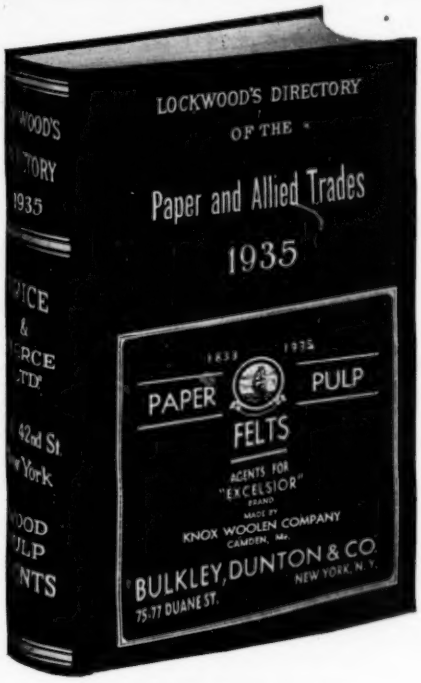
Brooklyn, N. Y.—The Equitable Paper Bag Company, 314 Scholes street, manufacturer of paper bags and containers, kraft paper goods, etc., has arranged for increase in capitalization from $200,000 to $800,000, for general expansion in operations.

Alexandria, Ind.—Fire recently damaged a portion of mill of the General Insulating and Manufacturing Company, manufacturer of insulating products. No official estimate of loss has been announced, but reported as minor. The damage will be replaced at early date.

Wellsburg, W. Va.—The Hammond Bag and Paper Company, manufacturer of paper bags, sacks, etc., is running on large capacity schedule, giving employment to regular working quota in different departments. At the close of 1934, a bonus of 5 per cent of year's wages was given to all employes, with an extra day's pay.

Lennoxville, Que.—The Quebec Asbestos Company, Ltd., has tentative plans under consideration for new local plant, consisting of main manufacturing unit and several auxiliary buildings. Entire plant is reported to cost over $85,000, including equipment.

Mukden, Manchuria—The East Manchuria Rayon Company, Ltd., Mukden, has secured permission from the Manchukuo Government to construct and operate two new cellulose rayon mills at Kirin and Lungchingtsun, Manchuria, respectively, at the same time utilizing timber resources in these districts for raw material supply. Each



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CONTENTS

City Address of Mills and Mill Supply Houses
Classified List of Paper Mill Products, Canada
Classified List of Paper Mill Products, United States
Classified List of Pulp Mill Products, Canada
Classified List of Pulp Mill Products, United States
Coated Paper Manufacturers
Envelope Manufacturers
Glazed and Coated Paper Manufacturers
Idle Mills
Index to Mills
Machinery and Equipment Manufacturers
Mill Officials
Pad Manufacturers
Paper Merchants, Canada
Paper Merchants, United States
Paper Stock and Rag Dealers
Paper Bag Manufacturers
Paper Box Manufacturers

CONTENTS

Paper and Pulp Mills in Canada
Paper and Pulp Mills in United States
Paper and Pulp Mills in Cuba, Mexico and South America
Paper Specialties
Papeterie Manufacturers
Prepared Roofing Paper Manufacturers
Pulp Testing Chemists
Purchasing Agents
Rags and Paper Stock Consumed by the Mills
Statistical Table of Mills
Tablet Manufacturers
Tag Manufacturers
Toilet Paper Manufacturers
Trade Associations
Twine Manufacturers in United States and Canada
Vegetable Parchment Paper Manufacturers
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..... 193 .....

mill will comprise several large units, with power house, machine shop and other mechanical structures, reported to cost in excess of $500,000, with machinery. Proposed to begin work on project early in 1935.

New Companies, Etc.

Taunton, Mass.—The Berry Paper Stock Company, Inc., has been incorporated with capital of 50 shares of stock, no par value, to deal in paper products of various kinds. James Berry is president, and A. H. Berry, 31 Cedar street, Taunton, treasurer.

New York, N. Y.—The H. Allison Company, Inc., has been organized with capital of 500 shares of stock, no par value, to deal in abrasive papers and allied products. The incorporators include Paul R. Shuttleworth, 79 East 130th street, and William H. Slater, 100 East 123rd street, both New York.

Watertown, N. Y.—The Black River Paper Company, Inc., has filed notice of company dissolution under state laws.

Springfield, Mass.—Fisher Brothers, Inc., has been chartered with capital of 100 shares of stock, no par value, to deal in waste paper goods. Harry Fisher, 378 Sumner avenue, Springfield, is president and treasurer.

New York, N. Y.—The Claremont Waste Materials Company, Inc., has been organized with capital of 100 shares of stock, no par value, to deal in waste paper goods of all kinds. Louis Baselico, 18 East 133rd street, New York, is principal incorporator and head.

Hartford, Conn.—The Plimpton Manufacturing Company, a holding organization identified with the paper industry, is arranging for company dissolution. The company was formed in 1872 and transferred its properties to the United States Envelope Company, 270 Broadway, New York, N. Y., in 1898. The Plimpton Company now holds 3,000 shares of preferred stock of the last noted organization.

New Ton-And-A-Half High Speed Truck

Combining beauty and graceful lines with the high horsepower used in their entire line of trucks, The Four Wheel Drive Auto Company of Clintonville, Wis., has developed a new ton-and-a-half speed truck which they have designated as Model HS. Their engineers have directed special attention to speed, sturdiness, ease of steering, smoothness of riding, reliability, and safety on the road. The specifications call for a road speed of forty-seven miles per hour, with full load.

The new model is propelled by an eighty-four horsepower engine which develops one hundred and eighty-five foot-pounds torque. The fundamental principle of applying power equally to all four wheels, which is used in all previous models of the Four Wheel Drive Auto Company's line, is retained in the new model HS. Ease of steering and simple handling is increased by setting the front axle back 42½ inches from the front bumper. The HS model employs this setback-of-front-axle principle also to secure equal distribution of load.

Avoiding the stigma of being a converted passenger car, this new entry in the truck field is built for heavy duty as well as fast travelling. The 6.50-20 tires are dual in the rear.

The HS model's net mechanical rating is 88.2 per cent, a rating based upon the official findings of Purdue University.

The new speed truck is convertible from an all-four-wheel drive to a front-wheel drive or rear-wheel drive in cases of emergency. The chassis weighs 5220 pounds including the cab. The gross weight is 11,200 pounds.

CENSUS OF CONVERTED PAPER

(Continued from page 13)

TABLE 2.—WAGE EARNERS, BY QUARTERS: 1933 AND 1931

(The figure given for the final month of each quarter is the total number of wage earners on the pay rolls for the week including the fifteenth day of the month, or for some other representative week in the month.)

Industry	Census year	March	June	Sept.	Dec.
Converted paper products, aggregate	1933	79,503	85,116	100,979	95,582
	1931	89,727	88,606	89,786	87,707
Bags, paper, exclusive of those made in paper mills	1933	6,903	7,457	8,624	7,831
	1931	6,750	6,823	6,784	6,625
Boxes, paper, not elsewhere classified	1933	41,918	44,951	54,431	50,507
	1931	46,620	46,033	47,701	46,697
Cardboard, not made in paper mills	1933	532	458	516	497
	1931	543	506	538	501
Card cutting and designing	1933	1,849	1,667	1,941	1,998
	1931	2,245	1,994	1,895	1,971
Envelopes	1933	7,472	7,556	8,534	8,482
	1931	9,124	8,922	8,753	8,692
Wall paper	1933	2,423	2,966	3,519	4,523
	1931	3,600	3,494	3,667	3,883
Paper goods not elsewhere classified	1933	18,406	20,061	23,414	21,744
	[1] 1931	20,845	20,834	20,448	19,338

[1] Revised.

TABLE 3.—CONVERTED PAPER PRODUCTS—PRODUCTION, BY KIND AND VALUE: 1933 AND 1931

Kind	1933	1931
1. Converted paper products industries, all products, total value	$477,088,593	[1] $520,921,231
2. Converted paper products	465,494,407	[1] 508,111,446
3. Other products (not normally belonging to the industries)	11,287,457	[1] 11,788,712
4. Receipts for custom (or contract) work	306,229	[1] 1,021,073
5. Converted paper products made as secondary products by establishments in other industries (principally paper mills), value	111,719,089	[1] 126,555,459
Converted paper products: Aggregate value (sum of 2 and 5)	577,213,496	634,666,905
Bags, paper, total	57,375,490	61,575,890
Kraft	44,044,395	46,271,015
Other	13,331,095	15,304,875
Bottle caps, paper	6,373,093	6,889,745
Boxes and containers, paper and paperboard	253,557,485	259,807,139
Cards cut and designed	10,967,448	15,197,373
Cardboard (converted)	4,869,786	4,205,291
Coated book paper	22,990,863	33,398,853
Crepe paper	1,659,899	3,031,488
Cups, paper	10,321,080	12,117,287
Dishes, spoons, etc., paper	1,944,371	3,851,952
Envelopes	33,092,998	45,270,347
Glazed and fancy paper	6,127,245	7,053,074
Gummed paper and tape	9,686,858	8,778,886
Lace, paper	1,547,753	2,127,989
Napkins, paper	6,524,162	6,337,307
Papeteries	5,918,480	6,186,691
Rolls, paper (for adding machines, etc.)	1,348,425	1,885,299
Tablets	10,842,694	6,900,588
Toilet paper	24,287,172	25,444,227
Towels, paper	6,598,095	7,857,541
Tubes, paperboard	4,606,979	3,412,348
Wall paper:		
Number of rolls	289,120,472	301,398,613
Value	$15,794,369	$20,189,360
Waterproof wrapping paper	1,883,415	3,213,439
Waxed paper	30,640,586	34,034,660
Other converted paper and paperboard products	48,254,750	55,900,131

[1] Revised.

J. J. Colvin Heads Local Brotherhood

[FROM OUR REGULAR CORRESPONDENT]

HUDSON FALLS, N. Y., January 7, 1935—Julius J. Colvin was elected president of the local branch of International Brotherhood of Pulp, Sulphite and Paper Mill Workers at the annual meeting here last week. Other officers chosen included John Nichols, vice president; George H. Elliott, secretary-treasurer; Robert Walsh, business agent, and John Krause, James Walsh and Louis Bombard, trustees. Announcement was made at the meeting by John P. Burke, head of the International organization, that a delegate will be selected at the next meeting to represent the local body at the annual convention next March in Buffalo.

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Waste, inefficiency and lost motion have no place in today's industrial scheme. The up-to-date replaces the obsolete. Permanence of new-equipment performance—without excessive maintenance or renewal costs—is obviously an item of importance. Correct applications of industrial chromium plate frequently offer the surest guarantee of long equipment life and maintained quality production.

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COMING EVENTS

AMERICAN PAPER AND PULP ASSOCIATION, Fifty-Seventh Annual Convention and Meeting, Waldorf-Astoria Hotel, New York, February 18-21.

TECHNICAL ASSOCIATION OF THE PULP AND PAPER INDUSTRY, Convention, Waldorf-Astoria Hotel, New York, February 18-21. Annual Luncheon, Waldorf-Astoria Hotel, Thursday, February 21.

SALESMEN'S ASSOCIATION OF THE PAPER INDUSTRY, Annual Meeting and Luncheon, Waldorf-Astoria Hotel, New York, Tuesday, February 19.

NEW YORK ASSOCIATION OF DEALERS IN PAPER MILL SUPPLIES, Annual Banquet, Hotel Commodore, Wednesday, February 20.

NATIONAL PAPER TRADE ASSOCIATION OF THE UNITED STATES, Convention, Waldorf-Astoria Hotel, New York, February 18-20.

CANADIAN PULP AND PAPER ASSOCIATION, Annual Meeting, Montreal, week of January 21.

TECHNICAL SECTION, CANADIAN PULP AND PAPER ASSOCIATION, Annual Meeting, Montreal, January 23-25.

THE THIRTY-HOUR WEEK

The seventy-fourth session of the United States Congress which convened last week will perhaps be the most important meeting of the national representatives of the American people that has been held in peace times. It is difficult to recollect when ever before so many important issues were to be settled.

Among the most outstanding of these are the question of the budget, the public works program, the relief policy, the matter of taxation, the immediate payment of the bonus, inflation of the currency, the future of the National Industrial Recovery Administration, the thirty-hour week, the power question and the provision for economic security which will probably include a plan for a joint Federal-State system of unemployment insurance.

The manner in which all of these questions are disposed of is of serious concern to every citizen, but industry is perhaps most worried about the prospects for a thirty-hour week. That this concern of industry is not needless is indicated by a current press dispatch from Washington which says that "the full power of organized labor will be concentrated on an attempt to force early Congressional enactment of a thirty-hour week for American Industry, the American Federation of Labor announced tonight. The decision was reached at a meeting today of 100 special representatives of labor. Other topics discussed were the Wagner Labor disputes bill, the National Recovery Act and the prompt restoration of the Federal pay cut. All are included in the trade unionists legislative program."

In the statement issued after the meeting, President William Green of the Federation, attacked a report of Brookings Institute officials that the proposed thirty-hour week would be detrimental to both industry and labor. He charged the report "reads more like the opposition of special pleaders than a common analysis of economists." Mr. Green pointed out that there can be no increase in production which the Brookings report says was essential until a market is developed for consumption of manufactured goods. "We can only develop this market by providing work for more than ten million unemployed," he said.

In the event that the forty-hour weekly wage is retained on a thirty-hour basis, the resulting increase in manufacturing costs will obviously increase prices so greatly as to interfere seriously with business. Opponents of the plan believe that unless wages are reduced proportionately with hours, the results will be an increase of production costs, higher prices for the consumer, fewer sales, a slackening of business activity and a loss of employment. They argued that a better prescription for prosperous employment is increased production, larger sales and advancing profits in which labor shares.

While admitting that they are worried mostly by the thirty-hour week act, business men feel that opposition has steadily crystallized against the measure since the last session of Congress and, according to the *New York Times*, that it has less chance for being enacted now than it had then. They claim that the bill has been subjected to serious scrutiny in the last six months and that even some labor leaders have privately expressed themselves as opposed to it, although labor organizations as a whole have endorsed it.

The industrial leaders also believe that the administration is strongly against the bill and that without the President's endorsement, it cannot possibly go through. They recognize, however, the strong sentiment that will probably develop in Congress for the bill and the main fear is that the administration may be forced to compromise to the detriment of industry.

The thirty-hour week would, we believe, be detrimental to industry in general and we know that it would be a serious disadvantage to the pulp and paper industry. Under all the circumstances, however, it may be seen that there is grave danger of some such measure being passed at this unusual session of the United States Congress and the pulp and paper industry should spare no effort in doing its share to see that this danger is avoided.

Couples Selling Points with Product Name

An interesting example of how short copy can be utilized for the double purpose of building up "name consciousness" and reason-why appeal is provided by the promotion material which the P. H. Glatfelter Company will use during the coming months.

This series consists of a group of colorful folders featuring the mill's popular watermarked sulphite bond—"Monoplane." The folders are printed on samples of the paper itself, and demonstrate effective 2-color combinations which can be used for the various colors of the Monoplane bond line. The illustrations and headlines on the front covers in each instance stress a particular virtue of the paper, in terms suggested by the brand name.

One piece, headed "Ready for the Run" shows a monoplane about to take off from a municipal airport on its regular scheduled route. The headline ties in naturally with the flat-lying quality of monoplane as an important factor in speed and efficiency on the press. Another of the mailing pieces shows a fleet of monoplanes flying in formation, and the copy is woven around the precision of stunt formation in aviation compared with the precision in uniformity of Monoplane paper.

The inside text of this series, while it is brief, rarely approaching a hundred words, succeeds in covering the salient talking points of the improved monoplane stock, at the same time that the name Monoplane is constantly emphasized to the reader. The present plan of distribution of this campaign provides for the mailing of a folder each month by the merchants who handle the Glatfelter line in the different sections of the country.

The advertising program of the Glatfelter mill, insofar as it applies to Monoplane bond, is intended to convince the printing trade that this paper has been much improved in strength, color, hardness and firmness. The research department of the mill has instigated a number of improvements in the paper, as a result of wide-spread experiments with comparative color values, texture and other basic distinguishing points by which the quality of any bond paper is measured.

The series of folders on the improved virtues of Monoplane Bond, it is announced by the mill, is but one of several promotion plans to be carried on during the coming year. Additional efforts will be devoted to magazine space and further direct mail material to promote the book papers and other items of the Glatfelter line, as well as increase institutional prestige by featuring the exceptionally fine facilities and fast delivery service for which the Glatfelter Company has long been known throughout the printing industry.

Miami Valley Is Optimistic

[FROM OUR REGULAR CORRESPONDENT]

DAYTON, Ohio, January 7, 1935—A general spirit of optimism has been displayed in Dayton and other Miami Valley mill centers, particularly since the President delivered his message the past week, and with the gradual improvement in business the latter part of last year and the hopeful feeling existing since the advent of the New Year.

In Middletown, the Paper City, where many representative business men expressed themselves soon after the first of the year, it was apparent that all classes of business was looking for a continued advancement in trading.

H. D. Martindale, official of the Shartle Brothers Machine Company, one of the representatives of the durable goods industry, said: "We are looking to 1935, with much optimism. We sell to paper mills. Owners of these mills, in many instances, have felt the depression, but they are not making preparations for the future, and their attitude is that future betterments are near."

C. R. Hook, president of the American Rolling Mills Company Middletown, speaking of the steel industry, said: "Improvement in business as far as the steel industry is concerned has been progressive. It has been materially accelerated during the past several weeks. This very definite improvement has been found in practically all lines except those classed as capital goods industries. The foundation for an extended period of good business has been laid."

Real estate, banks and building and loan association representatives and many other business interests indicated that encouragement has been manifest by the trend of the times during the past few weeks, and the Miami Valley expects to share in the expected revival.

Estate of Edward B. Weston

[FROM OUR REGULAR CORRESPONDENT]

DAYTON, Ohio, January 7, 1935—Estate of the late Edward B. Weston, president of the Weston Paper and Manufacturing Company of this city, was valued at $4,486,779, according to an inventory and appraisal completed Thursday in Probate court for computation of the various taxes to be assessed.

It is understood that the value about the time of the death of the paper manufacturer, or some time previously, was between six and seven million dollars but with the depression shrinkage, as in most estates, the amount was considerably reduced. The value of the estate, however, is the largest reported of any representative of the trade in the Miami Valley since the death of the late Paul J. Sorg, at Middletown, who also amassed much of his wealth in the tobacco business.

All of the more than $4,486,000 estate is personal property, except $17,500 in real estate, the papers filed in court reveal.

The inventory discloses holdings in the Terre Haute Paper Company, Terre Haute, Ind., valued at $1,658,177.20, and in the Weston Paper Manufacturing Company, $1,134,310.10.

Under the terms of the will, the trust fund is to be administered in favor of four daughters, Irma Delight Weston, Marguerite Weston Afflerbach, Thyrza Weston Campbell and Winifred Weston Wooten, on an equal basis.

Plunguian Joins Dayton Laboratory

Dr. Mark Plunguian, who graduated from the Idaho Forestry School with the degree M. S. (For.) in 1931, has accepted the position of research chemist with the Thomas and Hochwalt Laboratories of Dayton, Ohio. This concern is a large commercial research laboratory. Dr. Plunguian will be in charge of research work on lignin and paper chemistry.

Dr. Plunguian was the first graduate student in the Idaho School of Forestry's newly established wood chemistry laboratory under the direction of Dr. E. C. Jahn. After leaving Idaho, Plunguian worked for a year as chemist for the Potlatch Lumber Co., at Potlatch and thtn went to McGill University where he received his doctorate in chemistry this past October. At McGill, Plunguian worked on lignin and humic acids under the direction of Dr. Harold Hibbert. Dr. Plunguian presented the results of his studies with Dr. Hibbert at the September meeting of the American Chemical Society in Cleveland.

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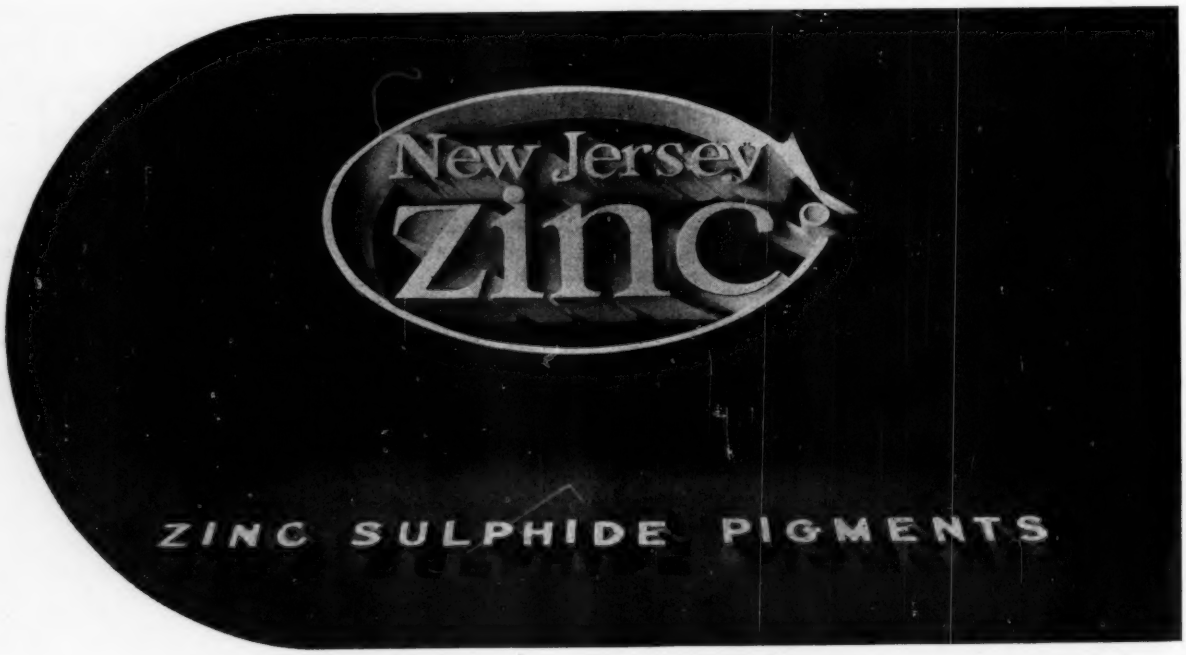

THE NEW JERSEY ZINC COMPANY

160 FRONT STREET, NEW YORK

Section of the
Technical Association of the Pulp and Paper Industry
Edited by Ronald G. Macdonald, Secretary

United States Patents On Paper Making

Fourth Quarter, 1934

Compiled by Clarence J. West, Chairman, Committee on Abstracts and Bibliography, TAPPI

The following list of patents has been compiled from the current numbers of the Official Gazette of the United States Patent Office. Since only one claim, in general, is published in the Official Gazette, it is not claimed that this list is complete.

Copies of any of these patents may be obtained from the Patent Office, Washington, D. C., by sending ten cents ($0.10) for each patent desired. At least the number of the patent and the patentee should be given. Personal checks and stamps are not accepted in payment for patents.

OCTOBER 2, 1934

1,975,072. Waterproofing and fireretarding composition. Charles F. Booth, assignor to Swann Research, Incorporated, Anniston, Ala. Filed July 1, 1931. 7 claims. (Cl. 134-26). Chlorinated diphenyl, modifying waxes and a metallic soap.

1,975,081. Fibrous products with inorganic binders. Willis A. Boughton, assignor to New England Mica Co., Waltham, Mass. Filed Sept. 12, 1932. 15 claims. (Cl. 154-2.6).

1,975,121. Tube making machinery. Adolph Potdevin, assignor to Potdevin Machine Company, Brooklyn, N. Y. Filed Nov. 2, 1931. 19 claims. (Cl. 93-20).

1,975,122. Feed roller mounting for tubing machines and the like. Adolph Potdevin, assignor to Potdevin Machine Company, Brooklyn, N. Y. Filed Nov. 2, 1931. 1 claim. (Cl. 271-2.3).

1,975,123. Bag making method and bag making machine. Adolph Potdevin, assignor to Potdevin Machine Company, Brooklyn, N. Y. Filed Feb. 1, 1932. 15 claims. (Cl. 93-33). Method of making valve bags.

1,975,161. Process for the digestion of vegetable growths to produce cellulose. Herman B. Kipper, Accord, Mass. Filed Mar. 14, 1933. 5 claims. (Cl. 92-9). The material is subjected to the action of nitric acid and carbon tetrachloride.

1,975,195. Coating method. Charles H. Dennison, assignor to American Rubber Company, Cambridge, Mass. Filed July 14, 1931. 1 claim. (Cl. 91-68).

1,975,255. Process of treating wood. Lemuel B. Decker, Kenogami, Quebec, Canada. Filed March 1, 1932. 3 claims. (Cl. 92-7). Wood blocks are softened in a heated liquor and subsequently ground.

1,975,286. Process of manufacturing waterproof crepe-paper. Friedrich Moritz Otto Pinoff, assignor to The Patent and Licensing Corporation, New York, N. Y. Filed Dec. 5, 1931. 2 claims. (Cl. 92-69). The process comprises creping a web of fibrous material while still moist and carrying aqueous bituminous emulsion and subsequently drying the web.

1,975,301. Apparatus for the manufacture of pulp. Carl Busch Thorne, Hawkesbury, Ontario, Canada. Filed Feb. 17, 1933. 2 claims. (Cl. 92-7). A pulp cooling chamber in the blowpit and a means for admitting cooling fluids into said chamber.

1,975,319. Centrifugal machine for purification of paper pulp and analogous masses. Georges Grauss, Paris, France. Filed March 12, 1932. 2 claims. (Cl. 233-45).

1,975,452. Manufacture of ground wood pulp and grinding stone therefore. Francis S. Farley, Trenton, N. J. Filed Nov. 23, 1932. 6 claims. (Cl. 51-206). A pulp stone.

1,975,487. Process of making strip shingles. John A. Topping, assignor to Asphalt Process Corporation, New York, N. Y. Filed Feb. 1, 1933. 7 claims. (Cl. 164-17).

1,975,515. Decorative material and method of making. Frederick G. Mayer, assignor to Sloane-Blabon Corporation, Trenton, N. J. Filed June 7, 1933. 12 claims. (Cl. 154-25). Decorated laminated sheet material.

1,975,548. Fabrication of corrugated papers. Charles Q. Ives, assignor to Sherman Paper Products Corporation, Newton, Mass. Filed July 13, 1933. 4 claims. (Cl. 154-55).

1,975,556. Leatherboard product and method of making same. Herman William Richter, assignor to Geo. O. Jenkins Co., Bridgewater, Mass. Filed Feb. 7, 1931. 5 claims. (Cl. 8-2). Leatherboard is bleached with an acid reducing agent.

1,975,579. Process of making seamless paper shades and other articles and products thereof. James J. Kernes, Chicago, Ill. Filed Nov. 11, 1933. 8 claims. (Cl. 154-2). Four or more alternate layers of inflammable tissue paper and a mixture of adhesive and oil between each of the layers.

1,975,584. Machine for manufacturing composition roofing. Arthur G. Leonard, Jr., assignor to Orenda Corporation, a corporation of Illinois. Filed October 13, 1931. 3 claims. (Cl. 92-40).

1,975,590. Bleaching cellulose. Frederick R. Seavey, Albert J. Phillips and Fredrich Olsen, assignors to The Cellulose Research Corporation, a corporation of Delaware. Filed April 10, 1929. 8 claims. (Cl. 204-59). Electrolytic bleaching.

1,975,708. Method and apparatus for drying foils, films, strips, sheets, ribbons, webs, preferably of cellulose. Ernst Bleibler, assignor to Sylvania Industrial Corporation, Fredericksburg, Va. Filed Oct. 23, 1930. 4 claims. (Cl. 34-48). Continuous process of drying regenerated cellulose in web form.

OCTOBER 9, 1934

1,975,771. Process for the recovery of pulp from printed paper. Alex B. Davis, James F. Thompson and Alfred T. Gardner, assignors to Lewis L. Alsted, Appleton, Wis. Filed Oct. 24, 1931. 5 claims. (Cl. 92-20). The ink is destroyed by a bleaching agent.

1,976,003. Container and method of making the same. Raymond A. Bennett, assignor to Boothby Fibre Can Company, Boston, Mass. Filed Oct. 24, 1930. 3 claims. (Cl. 93-36). Method of forming a cap-receiving top end on a tapering tubular body made of paper.

1,976,027. Transparent sheet material. Edouard M. Kratz, assignor to Marsene Products Co., Gary, Ind. Filed July 8, 1927. 8 claims. (Cl. 91-68).

1,976,028. Transparent reinforced waterproof sheet material. Edouard M. Kratz, assignor to Marsene Products Co., Gary, Ind. Filed May 16, 1930. 7 claims. (Cl. 154-50).

1,976,156. Paper cutting machine. George C. Beidler, Rochester, N. Y. Filed March 23, 1933. 10 claims. (Cl. 164-43).

1,976,169. Apparatus for seaming papermakers' drier felts. Thomas Hindle, Blackburn, England. Filed May 16, 1932. 4 claims. (Cl. 112-2). A sewing machine.

1,976,259. Machine for folding paper bags. Ernst Hermann Jähne, assignor to "Universelle Cigarettenmachinen-Fabrik J. C. Muller and Co., Dresden, Germany. Filed Sept. 28, 1931. 1 claim. (Cl. 93-12).

1,976,282. Acoustic wall board. Kichiro Izumiyama, Shibuya-Machi, Toyotama-Gun, Tokyo-Fu, Japan. Filed Feb. 24, 1932. 1 claim. (Cl. 154-44). Insulating and sound absorbing wall board embossed on one side.

1,976,297. Preparation or reduction of wood or other fibrous material. Roland B. Respess, assignor to Respats, Inc., Providence, R. I. Filed Jan. 15, 1932. 25 claims. (Cl. 92-26). A reducing mill for fibrous material.

1,976,329. Waterproof and punctureproof paper. Lloyd G. Copeman, assignor to Copeman Laboratories Company, Flint, Mich. Filed April 8, 1932. 6 claims. (Cl. 154-50). Rubber is used as an intermediate layer.

1,976,513. Process and machine for making bags. George W. Poppe, assignor to Equitable Paper Bag Co., Inc., Brooklyn, N. Y. Filed June 25, 1932. 3 claims. (Cl. 93-18).

1,976,641. Paper winding machine. Walter G. Vernon, Philip D. Parsons and John Edgar Hires, assignors to Scott Paper Company, Chester, Pa. Filed June 17, 1933. 33 claims. (Cl. 242-56).

1,976,684. Structural material. Treadway B. Munroe and George E. Swenson, assignors to The Celotex Company, Chicago, Ill. Filed Nov. 11, 1930. 4 claims. (Cl. 154-2).

1,976,687. Method of making bags. Albert Butterfield, assignor to Advance Bag and Paper Company, Incorporated, Boston, Mass. Filed June 12, 1933. 6 claims. (Cl. 93-35).

OCTOBER 16, 1934

1,976,743. Paper manufacture. Harold Robert Rafton, assignor to Raffold Process Corporation, Andover, Mass. Filed May 25, 1933. 23 claims. (Cl. 92-21). Use of alkaline filler and adding acidic material to web containing the same.

1,976,744. Paper manufacture. Harold Robert Rafton, assignor to Raffold Process Corporation, Andover, Mass. Filed Nov. 29, 1932. 23 claims. (Cl. 92-21). Method of manufacturing sized paper filled with alkaline filler.

1,976,745. Paper manufacture. Harold Robert Rafton, assignor to Raffold Process Corporation, Andover, Mass. Filed Dec. 6, 1932. 19 claims. (Cl. 92-21). Paper filled with alkaline filler including among its ingredients alkaline filler and coloring matter capable of deterioration by the filler in the presence of moisture at the temperature of the driers.

1,976,948. Prepared roofing. Thomas B. Lehon, assignor to The Lehon Company, Chicago, Ill. Filed Sept. 29, 1930. 2 claims. (Cl. 91-68).

1,977,022. Process of treating paper and product thereof. Willard E. Swift, assignor to United States Envelope Company, Springfield, Mass. Filed Nov. 22, 1929. 12 claims. (Cl. 91-70). Treatment of paper to reduce its surface friction.

1,977,045. Process of drying laminated paper material or boards. John C. Corcoran, assignor to Superior Tool and Manufacturing Co., Inc., Worcester, Mass. Filed Sept. 12, 1931. 1 claim. (Cl. 34-24).

1,977,046. Method for making a plaster receiving base. Harry A. Cumfer, Chicago, Ill. Filed Oct. 19, 1932. 3 claims. (Cl. 154-2).

1,977,070. Progressive paper machine drive. John A. Limpert, assignor to Paper Patents Company, Neenah, Wis. Filed Aug. 19, 1933. 1 claim. (Cl. 92-38).

1,977,221. Paper manufacture. James A. Yates, assignor to Brown Company, Berlin, N. H. Filed Nov. 5, 1932. 14 claims. (Cl. 91-68). Paper containing viscose-derived, regenerated cellulose is treated with glycerine containing dissolved chlorine.

1,977,352. Suction box top for a paper making machine. Jean Prouix, Gatineau Point, Quebec, Canada. Filed March 24, 1933. 4 claims. (Cl. 92-51).

1,977,379. Method and apparatus for use in the digestion of fibrous material. Thomas L. Dunbar, Watertown, N. Y. Filed July 12, 1932. 20 claims. (Cl. 92-7). Method of transferring liquor from digester to exchange heater and back again.

1,977,574. Paper bonding method and composi-

tion. George E. Corson, assignor to Clinton Corn Syrup Refining Company, Clinton, Iowa. Filed Nov. 4, 1931. 5 claims. (Cl. 92-21). A bonding material consisting of starch, sodium aluminate and aluminum sulphate.

OCTOBER 23, 1934

1,977,647. Bag making machine. Thomas M. Royal, Philadelphia, Pa. Filed June 7, 1930. 7 claims. (Cl. 164-68).

1,977,728. Composition of matter and process therefor. Ralph W. E. Leach, Winchester, Mass. Filed June 17, 1932. 14 claims. (Cl. 18-47.5) The ligneous and resinous constituents of spent sulphite liquor are freed from moisture and molded.

1,977,807. Method of disintegrating. Thomas Robinson, assignor to Lancaster Processes, Inc., New York, N. Y. Filed Oct. 30, 1931. 14 claims. (Cl. 92-20). Method of disintegrating stock.

1,977,874. Acoustical composition. Paul S. Denning, assignor to F. E. Schundler and Co., Inc., Joliet, Ill. Filed Jan. 21, 1932. 2 claims. (Cl. 154-44).

1,977,879. Process of manufacturing sulphite pulp. Ernst Hochberger, assignor to Canadian International Paper Company, Montreal, Quebec, Canada. Filed June 3, 1933. 4 claims. (Cl. 92-11). Two-stage process, the first stage of which has combined SO_2 equal to 20-25% of the total SO_2 and the second stage in which 5-15% of the SO_2 is combined.

1,978,022. Rubber asphalt dispersion. Lester Kirschbraun, assignor to The Patent and Licensing Corporation, New York, N. Y. Filed Nov. 15, 1930. 6 claims. (Cl. 92-21). Rubber dispersion is used as medium for bitumen and the resultant dispersion is mixed with fibrous stock.

1,978,081. Drying cylinder. Milton E. Hanson, assignor to B. F. Sturtevant Company, a corporation of Massachusetts. Filed Jan. 29, 1931. 5 claims. (Cl. 219-19).

1,978,385. Rubber-impregnated fibrous sheet material. Stephen B. Neiley, assignor to Dewey and Almy Chemical Company, North Cambridge, Mass. Filed April 29, 1933. 11 claims. (Cl. 92-21).

1,978,386. Index card member and method of making. Benjamin G. Rand, assignor to Remington Rand, Inc., Buffalo, N. Y. Filed Aug. 24, 1931. 4 claims. (Cl. 92-70).

OCTOBER 30, 1934

1,978,405. Apparatus for producing and finishing prints. Chares M. Boyce, assignor to John R. Ditmars, New York, N. Y.. Filed June 20, 1931. 7 claims. (Cl. 91-55).

1,978,406. Treating surfaces of fibrous materials. Charles M. Boyce, assignor to John R. Ditmars, New York, N. Y. Filed June 20, 1931. 6 claims. (Cl. 91-68). Transparent coating composition.

1,978,443. Screening pulp. Edward James Trimbey, Glens Falls, N. Y. Filed April 13, 1933. 19 claims. (Cl. 92-34). Use of centrifugal force.

1,978,620. Sheet material and method of making the same. Nehemiah H. Brewster, assignor to The Naugatuck Chemical Company, New York, N. Y. Filed April 30, 1931. 17 claims. (Cl. 154-2). Simulated woven fabric.

1,978,625. Wall board. John Dean, San Francisco, Calif. Filed July 12, 1932. 2 claims. (Cl. 72-124).

1,978,631. Gummed paper and tape. Paul W. Herrlinger, assignor to The Gummed Products Company, Troy, N. Y. Filed July 25, 1933. 1 claim. (Cl. 91-68).

1,978,749. Heat recovery and washing system for sulphite pulp. Jacob Darre Jenssen, assignor to G. D. Jenssen Company, New York, N. Y. Filed June 8, 1933. 17 claims. (Cl. 92-11.) Method of circulating acid liquor in pulp digester.

1,978,836. Process of manufacture and composition of matter in forming stencil papers. Leo M. Fink, assignor of ⅓ to Ida T. Barnes and ⅓ to Ralph W. Upton, all of Seattle, Wash. Filed Dec. 16, 1929. 7 claims. (Cl. 41-38.6). A cellulose ester, camphor-bearing oil, glycerine and a preservative.

1,978,923. Composition board. John A. Wiener and John B. Harmon, Oswego, N. Y. Filed April 2, 1934. 5 claims. (Cl. 92-21). Wall board containing 25% wood fiber and 75% pulverized mica.

1,978,982. Suction apparatus. Francis L. Barstow, assignor to New York Belting and Packing Company, Passaic, N. J. Filed Feb. 11, 1933. 12 claims. (Cl. 92-52).

1,979,065. Method and means for reproducing the grain of wood on paper. Lawrence W. Case, Manchester, Conn. Filed Jan. 30, 1933. 6 claims. (Cl. 101-219). A solid roll of wood, means for applying dye to roll and for feeding paper between roll and pressure cylinder.

1,979,178. Shower pipe for suction rolls. Albert H. Standley, assignor to Downingtown Manufacturing Company, Downingtown, Pa. Filed April 14, 1934. 9 claims. (Cl. 92-53).

NOVEMBER 6, 1934

1,979,253. Carton blank folding and stapling machine. Don W. Coy, assignor to Chicago Carton Company, Chicago, Ill. Filed Feb. 21, 1931. 27 claims. (Cl. 93-49).

1,979,310. Paper winder. Earl E. Berry, assignor to Beloit Iron Works, Beloit, Wis. Filed July 22, 1931. 25 claims. (Cl. 242-81).

1,979,341. Process for preparing cellulose. Fredrich Olsen, assignor to The Cellulose Research Corporation, a corporation of Delaware. Filed April 11, 1929. 5 claims. (Cl. 92-1).

1,979,346. Method and appartus for coating and drying materials. Herman George Rappolt, New York, N. Y., and Lynn Brown Case, Highland Park, N. J. Filed Feb. 17, 1932. 2 claims. (Cl. 34-48).

1,979,373. Apparatus for defiberizing wood. George H. Ellis, assignor to The Insulite Company, Minneapolis, Minn. Filed May 31, 1930. 12 claims. (Cl. 83-75).

1,979,721. Method and apparatus for making paper bags. Howard A. Wolf, assignor to Wolf Brothers, Philadelphia, Pa. Filed May 18, 1932. 11 claims. (Cl. 93-19).

1,979,794. Molded pulp article. Merle P. Chaplin, assignor to Fidelity Trust Company, Portland, Maine. Filed Aug. 4, 1931. 2 claims. (Cl. 92-56).

1,979,819. Process of making felt, paper and the like. Bernard C. Beckman and William T. Hofmann, assignors to The Patent and Licensing Corporation, Boston, Mass. Filed Nov. 4, 1927. 8 claims. (Cl. 92-42). Process for forming composition shingles.

1,979,827. Method and apparatus for manufacturing containers. George O. Frostad, assignor to National Paper Can Company, Cudahy, Wis. Filed Jan. 15, 1932. 22 claims. (Cl. 93-55).

1,979,862. Shingle. John W. Cannon, Plainfield, N. J. Filed March 22, 1933. 18 claims. (Cl. 108-10).

1,979,864. Art of paper and board manufacture. Francis L. Carson, assignor to The Pacific Lumber Company, San Francisco, Calif. Filed Jan. 7, 1931. 3 claims. (Cl. 92-39). Manufacture of paper from shredded redwood bark.

1,979,985. Apparatus for making liners. Albert E. F. Moone, assignor to Orenda Corporation, Chicago, Ill. Filed Aug. 15, 1932. 14 claims. (Cl. 93-1).

1,980,053. Shingle and method of manufacturing the same. Norman P. Harshberger, assignor to Bakelite Building Products Co., Inc., New York, N. Y. Filed May 26, 1930. 8 claims. (Cl. 108-33).

NOVEMBER 13, 1934

1,980,193. Chip cutter. Ellwood J. Finegan, assignor of one-half to Michael J. Power, both of Nekoosa, Wis. Filed April 29, 1932. 7 claims. (Cl. 83-75).

1,980,253. Paper making apparatus. Cassius M. Bryan, West Springfield, Mass. Filed April 3, 1933. 1 claim. (Cl. 92-24). Beater apparatus.

1,980,309. Coated fabric and method of making same. Arthur M. Agnew, assignor to Chadeloid Chemical Company, New York, N. Y. Filed Jan. 22, 1929. 28 claims. (Cl. 91-70). Coated material of the oil cloth type.

1,980,390. Apparatus for digesting cellulose material. Camille Dreyfus and George Schneider, assignors to Celanese Corporation of America, New York, N. Y. Filed Nov. 24, 1930. 1 claim. (Cl. 92-7). Wood and liquor are heated at super-atmospheric pressure in pipe or coil.

1,980,392. Slitting machine. David F. Evans and Clarence E. Coleman, assignors to Du Pont Cellophane Company, Inc., New York, N. Y. Filed Dec. 2, 1931. 36 claims. (Cl. 164-65).

1,980,481. Acidproof beater bar. Frank M. Gloyd, assignor to Simonds Worden White Company, Dayton, Ohio. Filed June 23, 1931. 1 claim. (Cl. 92-22).

1,980,604. Method and apparatus for making cartons. Theodore Von Thien, assignor to Robert Gair Company, Inc., New York, N. Y. Filed Feb. 18, 1933. 30 claims. (Cl. 93-49).

1,980,608. Felt for paper machines. Adolf Bong, assignor to Firm Aktiengesellschaft der Oesterreichischen Fezfabriken, Vienna, Austria. Filed July 17, 1931. 1 claim. (Cl. 139-426).

1,980,681. Wall board. Arthur Hugo Harrison, Gold Pines, Ontario, Canada. Filed Oct. 28, 1933. 6 claims. (Cl. 154-2). A wall board, comprising a core containing lime at least 60% of which is carbonated, and paper liners adhering to said core.

1,980,879. Paper roll stand. Oscar Charles Roesen, assignor to Wood Newspaper Machinery Corporation, New York, N. Y. Filed Feb. 9, 1931. 7 claims. (Cl. 242-64).

1,980,881. Manufacture of waterlaid fibrous webs. Milton O. Schur, assignor to Brown Company, Berlin, N. H. Filed Nov. 25, 1931. 4 claims. (Cl. 92-20). Method of depositing practically unhydrated fibers from aqueous suspension as a waterlaid leb.

1,980,889. Heating insulating material. George Miller Thomson, Caledonia, Ontario, Canada. Filed Dec. 21, 1931. 2 claims. (Cl. 106-20). A gypsum wallboard having pieces of exfoliated vermiculite distributed throughout the mass.

1,980,905. Method of coloring sheet material. Harry Theodore Broderson, assignor to Johns-Manville Corporation, New York, N. Y. Filed May 13, 1930. 4 claims. (Cl. 91-70).

1,980,923. Method of and apparatus for coating paper. Stanislas Lebel, assignor to S. D. Warren Company, Boston, Mass. Filed Aug. 18, 1931. 9 claims. (Cl. 91-68).

NOVEMBER 20, 1934

1,980,979. Pulp board and method of making same. Hubert L. Becher, Trenton, N. J. Filed July 13, 1929. 7 claims. (Cl. 92-54). Method of drying pulp board.

1,981,038. Gluer. Harold J. Goss, assignor to The International Paper Box Machine Company, Nashua, N. H. Filed Oct. 21, 1931. 9 claims. (Cl. 91-51).

1,981,049. Paper making apparatus. William R. Kellett, assignor to Paper Patents Company, Neenah, Wis. Filed June 6, 1932. 10 claims. (Cl. 92-49). Arrangement such that the moisture content of the web and felt is substantially constant in the forward reach between the pick-up and transfer point.

1,981,176. Lignin derivatives and process of making same. Guy C. Howard, Wausau, Wis. Filed Oct. 22, 1930. 18 claims. (Cl. 260-2). Recovery of lignin from sulphite waste liquors.

1,981,321. Laminated board making machine. Lloyd Thurman Murphy, Chattanooga, Tenn. Filed July 22, 1930. 3 claims. (Cl. 91-51).

1,981,323. Process for producing wood cellulose comparable to cotton, with high tenor of alkali resisting cellulose. Francesco Carlo Palazzo and Fortunato Palazzo, Florence, Italy. Filed Jan. 23, 1933. 2 claims. (Cl. 92-13). Cellulose is treated in an autoclave with 1-1.5% sodium hydroxide and 0.2-0.3% of colloidal sodium salts of the emulsoid class at 1-2 atmospheres for 1-2 hours.

1,981,338. Machine for making corrugated paper board. George W. Swift, Jr., assignor to George W. Swift, Jr., Inc., Bordentown, N. J. Filed Jan. 10, 1934. 11 claims. (Cl. 154-31).

1,981,405. Process for manufacturing waterproof textiles, papers, cardboards and pasteboards and finished containers made from those. Hans Wrede, assignor to The Paterson Parchment Paper Company, Passaic, N. J. Filed March 7, 1932. 2 claims. (Cl. 91-68). Coating with glue and a hardening agent.

1,981,573. Pulp forming process. Earl Stafford, assignor to The Richardson Company, Lockland, Ohio. Filed July 18, 1930. 8 claims. (Cl. 92-21). Method of mixing fibrous material and heat plastic substance.

1,981,592. Method of impregnating fibrous materials for building elements. Konrad Erdmann, Radenthein, Austria. Filed Oct. 15, 1930. 1 claim. (Cl. 91-68).

1,981,759. Circulation process and device in sulphite cellulose digestion. Sjune Svensson, Hirsmofors, Krokom, Sweden. Filed Nov. 10, 1932. 25 claims. (Cl. 92-7). Method of circulating liquor in the digester.

1,981,803. Method of and apparatus for producing multi-shade mottled paper. Olof H. Hedstrom, Jr., Hartford City, Ind. Filed March 7, 1934. 7 claims. (Cl. 92-40).

NOVEMBER 27, 1934

1,981,883. Mass production of paper fibers from banana stalks. Charles O. Tappan, New York, N. Y. Filed June 11, 1930. 22 claims. (Cl. 92-3).

1,981,924. Paper pulp extractor. Lemuel V. Reese and George W. Johnson, assignors to The American Laundry Machinery Company, Cincinati, Ohio. Filed June 6, 1931. 1 claim. (Cl. 233-19). Centrifuge.

1,982,002. Method of bleaching paper pulp. Raymond S. Hatch, assignor to International Bleaching Corporation, New York, N. Y. Filed March 23, 1932. 18 claims. (Cl. 8-2). Method of circulating pulp during chlorine bleaching.

1,982,018. Coated paper. Allen F. Owen, assignor to The Naugatuck Chemical Company, Naugatuck, Conn. Filed Nov. 14, 1931. 4 claims. (Cl. 91-68). Coating composition comprising a major proportion of mineral material and casein, rubber solids of an aqueous dispersion of rubber and triethanolamine in minor proportions.

1,982,024. Treatment of fibrous material. Reed P. Rose and Allen F. Owen, assignors to General Rubber Company, New York, N. Y. Filed April 7, 1930. 8 claims. (Cl. 18-50). A mixture of fibers and rubber for moulding purposes.

1,982,129. Purification of deinking wastes and other industrial effluents. Sidney D. Wells and William B. Cramer, assignors to Lewis L. Alsted, Appleton, Wis. Filed March 24, 1933. 8 claims. (Cl. 209-166). The waste is treated with sulphuric acid and the liberated fatty acids and pigments are recovered.

1,982,130. Chemical treatment process for pulp manufacture. Harry L. Wollenberg, assignor to Longview Fibre Company, Longview, Wash. Filed Sept. 5, 1933. 3 claims. (Cl. 92-6).

1,982,244. Pulp screen plate. George W. Davis, Seattle, Wash. Filed Nov. 27, 1929. 4 claims. (Cl. 92-30).

1,982,314. Method of making panel board. John W. Ledeboer, assignor to Keasbey and Mattison Company, Ambler, Pa. Filed May 24, 1932. 1 claim. (Cl. 91-68). An insulating board of asbestos cement.

1,982,349. Fourdrinier paper machine. Francis S. McDonnell, assignor to Herbert A. Baker, Norwood, Mass., trustee. Filed April 18, 1931. 51 claims. (Cl. 92-45).

1,982,370. Stock consistency indicating and regulating apparatus for pulp and paper making machines. Russell Carpenter, Wayagamack Islands, Three Rivers, Quebec, Canada. Filed June 26, 1933. 11 claims. (Cl. 92-46).

1,982,503. Paper bag. Carleton G. Eaton, assignor to A. M. Eaton Paper Company, Boston, Mass. Filed Sept. 19, 1929. 5 claims. (Cl. 93-35). Method of making paper shopping bags.

1,982,542. Treated fibrous material and process of making the same. William R. Seigle, assignor to Johns-Manville Corporation, New York, N. Y. Filed March 5, 1932. 5 claims. (Cl. 91-68). Method of making intimate mixture of asbestos and basic magnesium carbonate.

DECEMBER 4, 1934

1,982,679. Roofing. Robert Maclean, assignor to Amalgamated Roofing Company, Chicago, Ill. Filed Sept. 2, 1930. 3 claims. (Cl. 91-70). Method of saturating a strip of roofing felt.

1,982,697. Attachment for paper bag making machines. Thomas M. Royal, Philadelphia, Pa. Filed Jan. 10, 1929. 9 claims. (Cl. 91-55).

1,982,901. Conveying system for wood grinders. Charles H. Burr, assignor to Great Northern Paper Company, Millinocket, Maine. Filed Oct. 30, 1931. 2 claims. (Cl. 214-152).

1,983,005. Positive sensitized paper. Sueo Sakurai, assignor to Zaiden Hojin Rikagaku Kenkyujo, Tokyo, Japan. Filed June 22, 1933. 5 claims. (Cl. 95-7).

1,983,008. Purification of bast fibers. Francis H. Snyder, assignor to Francis H. Snyder, Inc., New York, N. Y. Filed Jan. 23, 1934. 14 claims. (Cl. 92-12). Use of a soluble sulphite and a non-carboxylic fatty detergent.

1,983,126. Press roll drive. John J. Farrell, assignor to Downingtown Manufacturing Company, Downingtown, Pa. Filed Sept. 21, 1933. 20 claims. (Cl. 92-49).

1,983,180. Manufacture of surface covering. J. Clarence McCarthy, assignor to Armstrong Cork Company, Lancaster, Pa. Filed Nov. 21, 1930. 23 claims. (Cl. 91-68).

1,983,323. John S. Stokes, assignor to Stokes and Smith Company, Philadelphia, Pa. Filed Nov. 16, 1932. 20 claims. (Cl. 93-36). Method of making box elements.

1,983,324. Machine for making articles of pulp. George W. Swift, Jr., assignor to George W. Swift, Jr., Inc., Bordentown, N. J. Filed Feb. 25, 1933. 16 claims. (Cl. 92-56). Molding machine.

1,983,361. Container made of paper and method of producing it. Marshall E. Gazette, assignor to Boothby Fibre Can Company, Boston, Mass. Filed Oct. 27, 1933. 5 claims. (Cl. 93-36).

1,983,494. Roofing material. Albert C. Fischer, assignor to The Philip Carey Manufacturing Company, Lockland, Ohio. Filed May 9, 1927. 2 claims. (Cl. 108-7).

1,983,495. Roof covering and method of manufacturing same. Albert C. Fischer, assignor to The Philip Carey Manufacturing Company, Lockland, Ohio. Filed June 25, 1928. 5 claims. (Cl. 108-6).

DECEMBER 11, 1934.

1,983,520. Laminated material. William Hale Charch and Theron G. Finzel, assignors to Du Pont Cellophane Company, Inc., New York, N. Y. Filed April 22, 1931. 27 claims. (Cl. 154-46). Moistureproof laminated wrapping material.

1,983,532. Wall board. Norman A. Brand, assignor to Armstrong Cork Company, Lancaster, Pa. Filed Oct 10, 1931. 5 claims. (Cl. 154-45.9).

1,983,547. Box making machine. Cutler D. Knowlton, assignor to Hoague-Sprague Corporation, Lynn, Mass. Filed Sept. 24, 1931. 39 claims. (Cl. 93-36).

1,983,553. Apparatus for the production of pressed fibrous articles. George James Manson, Hawkesbury, Ontario, Canada. Filed Nov. 22, 1928. 3 claims. (Cl. 92-54).

1,983,554. Process and apparatus for finishing pressed fibrous articles. George James Manson, Hawkesbury, Ontario, Canada. Filed Nov. 22, 1928. 5 claims. (Cl. 92-54).

1,983,572. Paper and process of and apparatus for making the same. Noel Statham and Thomas G. Leek, assignors to Industrial Chemical Sales Company, Inc., New York, N. Y. Filed March 8, 1933. 7 claims. (Cl. 92-21). Use of a salt of the group composed of calcium carbonate and calcium sulphate in the paper sheet.

1,983,662. Roller such for example as is used in calenders. Emil Gminder, assignor to B. F. Perkins and Sons, Inc., Holyoke, Mass. Filed Dec. 11, 1930. 2 claims. (Cl. 92-77).

1,983,690. Method of manufacturing wall papers. Josef Behrens, Berlin, Germany. Filed Oct. 26, 1931. 2 claims. (Cl. 101-178).

1,983,708. Box blank mechanism. Charles Ruble, Charles L. Bond and Edward P. Drake, assignors to Miehle Printing Press and Manufacturing Company, Chicago, Ill. Filed Nov. 2, 1931. 42 claims. (Cl. 93-58).

1,983,789. Production of pulp and treatment of residual liquors, etc. Lin Bradley and Edward P. McKeefe, assignors to Bradley-McKeefe Corporation, New York, N. Y. Filed Jan. 23, 1928. 21 claims. (Cl. 23-129). Method of producing solid sodium bicarbonate and a solution of sodium sulphite and sodium bicarbonate from a solution containing sodium sulphide.

1,983,793. Method and apparatus for the production of pulp. Thomas L. Dunbar and George E. Fulton, assignors to Chemipulp Process, Incorporated, Watertown, N. Y. Filed Oct. 5, 1932. 15 claims. (Cl. 92-7). Method of circulating liquor in the digester.

1,983,870. Laminated material and method of preparing same. Ulrich Ostwald, assignor to Du Pont Cellophane Company, Inc., New York, N. Y. Filed Feb. 26, 1931. 15 claims. (Cl. 154-40).

1,983,871. Method of laminating. Ulrich Ostwald, assignor to Du Pont Cellophane Company, Inc., New York, N. Y. Filed June 30, 1931. 12 claims. (Cl. 154-40).

1,983,875. Laminated material. Karl Edwin Prindle, assignor to Du Pont Cellophane Company, Inc., New York, N. Y. Filed Dec. 10, 1930. 20 claims. (Cl. 154-46).

1,983,918. Manufacture of water-repellent papers or paper articles sized with wax dispersions. Oscar F. Neitzke, assignor to Bennett, Incorporated, Cambridge, Mass. Filed Aug. 6, 1932. 5 claims. (Cl. 92-68).

1,983,936. Shingle. Dozier Finley, assignor to The Paraffine Companies, Inc., San Francisco, Calif. Filed Aug. 29, 1930. 7 claims. (Cl. 108-7).

1,983,939. Method of making waxed paper bags. Abraham B. Kehr, Philadelphia, Pa. Filed Nov. 10, 1932. 4 claims. (Cl. 93-35).

1,984,018. Art of and means for making sound producing articles. Jesse B. Hawley, Geneva, Ill. Filed July 20, 1931. 7 claims. (Cl. 92-57).

1,984,019. Fibrous sound reproducing diaphragmatic members and means for and method of making the same. Jesse B. Hawley, Geneva, Ill. Filed May 25, 1932. 13 claims. (Cl. 92-57).

1,984,049. Bag closing and sealing machine. Helmer Anderson, assignor to General Mills, Inc., Minneapolis, Minn. Filed June 7, 1932. 23 claims. (Cl. 93-6).

1,984,073. Process and machinery for the manufacture of asbestos-cement pipes of a small diameter and of little thickness. Adolfo Mazza, assignor to Johns-Manville Corporation, New York, N. Y. Filed March 18, 1931. 4 claims. (Cl. 92-66)

1,984,122. Bag and method of manufacture. Henri Felmann, assignor to Harry Morris, Chicago, Ill. Filed Jan. 3, 1933. 1 claim. (Cl. 150-32).

1,984,188. Calcium sulphite and paper containing the same. Gerald Haywood, assignor to Industrial Chemical Sales Company, Inc., New York, N. Y. Filed March 8, 1933. 15 claims. (Cl. 91-68). A paper sheet containing a filler having calcium sulphite as a principal ingredient quantitatively.

1,984,190. Mineral fiber soundproof panel. Kenneth W. Huffine, assignor to Banner Rock Corporation, Alexandria, Ind. Filed July 27, 1928. 5 claims. (Cl. 154-44).

1,984,218. Composition building material. Lester Kirschbraun, assignor to The Patent and Licensing Corporation, Boston, Mass. Filed Aug. 14, 1931. 17 claims. (Cl. 108-8). A composite shingle.

DECEMBER 18, 1934

1,984,384. Laminated die. William M. Sheffield, New York, N. Y. Filed Feb. 14, 1933. 19 claims. (Cl. 92-57).

1,984,484. Apparatus for feeding paper making machines. George Daniel Kilberry, Lancaster, Pa. Filed Nov. 14, 1931. 12 claims. (Cl. 92-44).

1,984,529. Reversible shingle. Norman P. Harshberger, assignor to The Barrett Company, New York, N. Y. Filed June 5, 1931. 9 claims. (Cl. 108-7).

1,984,647. Apparatus for making roofing. Arthur G. Leonard, Jr., assignor to Orenda Corporation, Chicago, Ill. Filed April 7, 1933. 12 claims. (Cl. 164-68).

1,984,784. Winding machine. James A. Cameron, assignor to Cameron Machine Company, Brooklyn, N. Y. Filed June 14, 1930. 5 claims. (Cl. 242-66).

1,984,814. Composite material. John P. Sherman, Gorham, Maine. Filed Sept. 5, 1933. 6 claims. (Cl. 154-50). A laminated sheet having an internal ply of highly porous uncompacted papermaking pulp with molten asphalt and reinforcing strands.

1,984,869. Pulp refining and the like and apparatus therefor. Francis S. Farley and Roger B. Brown, assignors to Lionel M. Sutherland, Lower Makefield Township, Pa. Filed May 23, 1931. 51 claims. (Cl. 92-26). Rotary disc refiner.

1,984,910. Waterproof sheet material. Edward H. Angier, assignor to Edward H. Angier, as trustee, Framingham, Mass. Filed Dec. 29, 1931. 3 claims. (Cl. 154-50). A pair of sheets of kraft paper adhesively joined by an intervening film of water-resisting material, the outer surfaces being non-tacky.

1,984,922. Composition material. Wallace C. Fischer, Chicago, Ill. Filed Oct. 6, 1930. 16 claims. (Cl. 91-68). A composition sheet comprising a bituminized fibrous foundation coated with an adhesive composition including rubber, resinous material and an inert filler.

1,985,124. Process for treating cellulose containing fabrics, threads and the like and product therefrom. Ernst Weiss, assignor to Heberlein Patent Corporation, New York, N. Y. Filed May 13, 1932. 8 claims. (Cl. 8-20). A transparent material is produced by treating soft cellulose-containing material with sulphuric acid at about zero degrees Centigrade.

1,985,180. Method and machine for manufacturing boxes, such as match boxes. Frederic Mange, assignor to Societe Indo-Chinois Forestiere et des Allumetes, Paris, France. Filed Jan. 11, 1932. 18 claims. (Cl. 93-40).

1,985,194. Process of making envelopes. Carlton H. Smith, assignor to Buggeln and Smith, New York, N. Y. Filed Dec. 9, 1932. 8 claims. (Cl. 93-61).

1,985,219. Drying apparatus. Ernest Bleibler, assignor to Sylvania Industrial Corporation, Fredericksburg, Va. Filed April 29, 1930. 3 claims. (Cl. 34-48). Drying apparatus for films, strips and the like of cellulose, more particularly of regenerated cellulose, including two tiers of drying rollers.

DECEMBER 25, 1934

1,985,293. Paste applying mechanism. Wallace D. Kimball, assignor to Standard-Knapp Corporation, Long Island City, N. Y. Filed Aug. 20, 1932. 8 claims. (Cl. 91-54).

1,985,300. Method of embossing. Louis E. Shaw, assignor to Adartcraft, Incorporated, New York, N. Y. Filed March 4, 1931. 7 claims. (Cl. 101-32).

1,985,312. Method of and apparatus for controlling a characteristic of a material. Tandy A. Bryson, Troy, N. Y. Filed Oct. 23, 1931. 18 claims. (Cl. 92-46).

1,985,313. Apparatus for controlling a characteristic of a material. Tandy A. Bryson, Troy, N. Y. Filed Oct. 23, 1931. 9 claims. (Cl. 92-46).

1,985,321. Pulp tester. Arthur B. Green, Westbrook, Maine. Filed June 2, 1931. 10 claims. (Cl. 73-51). A perforated cylinder adapted for immersion in the pulp, having a flange near the upper end for determining the degree of immersion, etc.

1, 985,479. Device for forming pulp chips. Walter I. Brown, Oakland, Calif. Filed Nov. 21, 1932. 1 claim. (Cl. 144-186). A slitting tool for pulp chippers.

1,985,504. Process for feeding black liquor to a smelting furnace. Alfred G. Kernin, assignor to Mosinee Paper Mills Company, Mosinee, Wis. Filed Jan. 9, 1932. 1 claim. (Cl. 23-48).

1,985,569. Refining engine. John D. Haskell and Graham P. Prather, assignors to Dilts Machine Works, Inc., Fulton, N. Y. Filed May 22, 1933. 13 claims. (Cl. 92-27).

1,985,609. Process for the digestion of vegetable growths to produce cellulose. Herman B. Kipper, Accord, Mass. Filed Sept. 18, 1933. 8 claims. (Cl. 92-6). The material is subjected to the action of the oxides of nitrogen and simultaneously to mechanical beating.

1,985,644. Machine for coating articles with paraffin or the like. Arthur R. Pollock, assignor to The Toledo Bottle Cap Company, Toledo, Ohio. Filed April 24, 1933. 11 claims. (Cl. 91-46).

1,985,650. Hood cap for bottles and the like. Wilbur L. Wright, assignor to Oswego Falls Corporation, Fulton, N. Y. Filed Aug. 3, 1935. 2 claims. (Cl. 215-38). A hood cap, the annular hood-cap-securing skirt portion of which carries a high melting point skirt-stiffening binder that is Sufficiently adhesive on glass to be normally glass fouling when in a substantially fused state.

1,985,698. Paper manufacture. Joseph H. Swan, 3d, assignor to The Gardner-Richardson Company, Middletown, Ohio. Filed May 28, 1932. 15 claims. (Cl. 154-50). Highly moisture proof and grease proof container board.

1,985,834. Stamp, etc. Jay B. Lawrence, assigor to American Decalcomania Co., Chicago, Ill. Filed Feb. 23, 1934. 4 claims. (Cl. 91-67.95).

1,985,859. Machine for folding flat paper-matters. Max Goder, assignor to United States Envelope Company, Springfield, Mass. Filed Aug. 22, 1933. 7 claims. (Cl. 93-61).

Approved Pulp Testing Chemist

The Joint Committee on Approved Pulp Testing Chemists for the Paper Industry, 122 East 42 street, New York, announces that George H. McGregor, of Longview, Wash., has been accepted by the committee as an approved paper and pulp mill testing chemist and is listed as such effective December 28, 1934.

Charles M. Haskins Resigns

Charles M. Haskins, who since May 12, 1934, has been acting as secretary of the National Code Authority for the Waste Paper Trade has resigned his position on that Code Authority effective December 24 and has also resigned as secretary of the National Compliance Committee for the Waste Paper Trade.

Recent Trends in Black Liquor Evaporator Design*

By W. T. Hinckley[1]

Abstract

A review of evaporation practice in alkaline pulping mills. A description of the various types of evaporators, their merits and shortcomings. Particular attention is drawn to the need for low cost corrosion resistant materials of construction for evaporators.

Present day problems regarding black liquor evaporator equipment in alkaline process pulp mills arise more frequently from a desire to improve the heat economy of the alkali recovery furnace, than from a need for increased pulp production capacity.

Early recovery furnace installations require black liquor only at such a concentration as will permit the production of a fairly dry black ash by evaporation of the water in the liquor during passage through a disc evaporator and an incinerator. The heat for this evaporation is supplied by the burning black ash in the case of the kraft process, or by a separately fired furnace in some of the older soda mills where the resulting black ash is treated in a leaching battery for alkali recovery. In either case, there is no recovery of heat from the liquor in the form of steam returned to the process.

It is axiomatic that for any given unit heating value of the solids in the liquor, the less the amount of water in the fuel fed to a recovery smelter, the greater will be the net heating value of the gases from the furnace. Modern heat recovery units are designed to utilize this heat efficiently for the production of the maximum quantity of steam in the recovery boiler, transferring a larger proportion of the total evaporation of water from the black liquor to the multiple effect evaporator where it can be done more economically. Therefore, the installation of a boiler on a recovery furnace, or replacement of the furnace with a modern unit, frequently requires increased multiple effect evaporator capacity to produce more highly concentrated liquor.

The usual situation is that the vacuum evaporator in a mill operating without heat recovery concentrates a part of the liquor to about 24 deg. Bé at 200 deg. F. or 45 per cent total solids, and the remainder of the weak black liquor is fed to the disc evaporator for dilution, the average concentration for the total quantity fed to the recovery unit being about 32 per cent total solids.

It is then desired to add heat recovery equipment and concentrate the total quantity of liquor to some higher density in multiple effect evaporation. The required concentration may be determined at some point from 50 to 70 per cent total solids, depending on the arrangement used in the recovery furnace. In most cases, all or a part of the existing evaporator equipment is still good for a number of years of service. The pulp mill engineer then faces the problem of whether or not it will be economical to use this equipment in the modernized installation, and if so, how it can be worked into the new arrangement with the best results.

Consequently, a survey of the comparative characteristics of the older types of pulp mill evaporators when operating under different conditions, and of the newer developments available for combination with them, is of frequent interest at the present time.

Horizontal-Tube Evaporators

Horizontal-tube evaporators in triple and quadruple effect installations date from the earliest alkaline process pulp mills in this country up to the year 1929, and constitute by far the largest number of installations in operation today. The older types are built of cast iron, with rectangular sections or ring body castings. Later installations are built with cylindrical bodies of all welded steel construction. The lower section or steam belt contains the tubes held in place by packing plates and tube gaskets. Steel heating surface is almost always used. The steam or vapor enters each effect through a steam chest outside the tube sheet and traverses the space inside the tubes, and the liquor circulates by thermal induction around and over the tubes.

The outstanding advantages of this type of construction are the ease and facility with which tubes may be removed and replaced as they fail from corrosion. Also, the first cost per square foot of heating surface is low, but this advantage tends to disappear because of the low evaporative capacity per unit of heating surface as compared to other types.

The disadvantages of the horizontal-tube evaporator are the tendency of the tubes to become fouled, and the difficulties of obtaining normal capacities on exceptionally foamy liquors. At the least irregularity in operation, any rosin soaps present in the liquor tend to stagnate and deposit between the tubes, inhibiting circulation and finally stopping it entirely, necessitating frequent boiling out of the evaporator with water.

In kraft mill operation the steam side of the tubes becomes coated with scale consisting mostly of iron sulphides. This deposit tends to decrease the inside area of the tube, and the rate of formation is cumulative and accelerative, necessitating frequent cleaning either by a caustic wash or mechanical drilling.

In the case of exceptionally foamy liquors, such as are handled in the kraft mills of the South, considerable operating technique is required to obtain the maximum rate of circulation and capacity in horizontal-tube evaporators. The foaming liquor blankets the tubes in a stagnant body of foam, which can only be overcome by increasing the concentration in all effects by use of mixed flow of the liquor, some weak liquor being fed to all effects to raise the concentration throughout the entire evaporator without increasing the concentration in the effect in which the liquor is finished, usually the first effect. The operation in these cases is a highly developed technique and is subject to upsets through any irregularity in feed liquor density, steam pressure or vacuum. At the start of a run, or after any great disturbance, several hours of close attention are required to obtain the optimum conditions. There is always danger of irregular levels and large intermittent liquor losses.

Because of the operating and maintenance features outlined above, the horizontal-tube evaporator is being rapidly

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[1] Member TAPPI, Chemical Engineer, Swenson Evaporator Company, Harvey, Ill.

superseded by improved designs, and is seldom recommended for new installations in pulp mills today.

Submerged-Tube Vertical Types

Evaporators of this construction, though not as widely used in pulp mills in America as the horizontal-tube type, are of as long standing. The bodies are cylindrical and of cast iron or welded steel construction. The tubes almost invariably are steel and rolled into top and bottom tube sheets, thus taking a vertical position in the evaporator. The heating element may be arranged as a calandria section, built into the evaporator body, either with one central downtake or multiple downtakes formed by a number of larger tubes; or the tubes may be rolled into a central steam basket completely removable from the evaporator body, the downtake being an annular space around the basket.

This type of construction is most advantageous in cases where peculiarities of the mill operation cause the black liquor to form scale on the tubes of the evaporators, as the short, relatively large diameter tubes are accessible and easily drilled out. There is practically no difficulty from fouling of the steam side of the tubes of vertical-tube evaporators in kraft mills. Iron sulphide scale forms, the same as in the horizontal-tube evaporator, but the action takes place on the outside of the tube, where the rate is not cumulative or accelerative and tends to correct itself by the cracking off of the scale. Circulation is better than in the horizontal-tube types, the average capacity per square foot of heating surface (under the same conditions of concentration and temperature) is usually about 35 per cent greater, and this design will run appreciably longer without boilouts.

Vertical-tube evaporators of the submerged-tube type exhibit the same characteristics as the horizontal-tube type when operated on foamy liquors, but to a lesser degree. The inhibiting action of the foam is less marked and the volume of liquor required to operate successfully is somewhat smaller, both of which factors assist to some extent in overcoming these disadvantages. The boiling characteristics are such that careful attention to the detailed design is required to avoid continuous entrainment and an appreciable liquor loss.

Forced-Circulation Evaporators

The design of the forced-circulation evaporator, so widely used in the alkali industry, and in other applications, was evolved in 1924, developed in the evaporation of caustic soda, and has since proved advantageous in several pulp mill installations. For black liquor, the evaporator is built of welded steel construction with 18-chrome 8-nickel alloy tubes rolled into a vertical heating element.

Forced-circulation is maintained by means of a high capacity, low head pump, and circulation is independent of concentration or foaming properties over a wide range of operating conditions. The heat transfer rate is increased by the high liquor velocity, and the evaporative capacity is several times that obtained in other types. As a result, the forced-circulation evaporator permits the use of 18-chrome 8-nickel alloy tubes in the much smaller heating surface, the cost of this metal being so high that its use in other types of evaporators, in most cases, is prohibitive.

Except in the case of scaling liquors, boilouts are completely eliminated due to the rapid circulation of the liquor carrying all rosin soap through the evaporator without fouling the tubes. In the case of scaling liquors, the rate of scale formation will be retarded, but the scaling will not be prevented; and, when operated on liquors forming an insoluble scale, this type of construction is more difficult to drill out than the submerged-tube vertical types. Entrainment is reduced to the vanishing point by the positive action of the high-velocity, downward curtain of liquor, and the most foamy liquors are handled with ease.

Generally speaking, the relative value of the forced-circulation evaporator in pulp mills is a question of low maintenance versus a higher first cost and higher operating charge for the power used by the circulating pumps. Maintenance costs are reduced almost to zero by the use of stainless steel tubes; and with power costs in the usual range, these two factors are approximately balanced. Continuous operation at constant capacity, with no shutdown periods for tube replacements, is thus obtained as the net return from a higher investment charge. It is evident that if steel tubes are used, the entire advantage of this type of evaporator disappears. Consequently, it is recommended only in cases where stainless steel heating surface is desired, or for operation on liquors forming a water-soluble scale.

The forced-circulation design is particularly applicable to concentrators operating at 65 to 70 per cent total solids at elevated temperatures, under which conditions 18-chrome 8-nickel stainless steel tubes become a necessity because of rapid failure of steel tubes from corrosion in this service.

The Long-Tube Film Type Evaporator

This general type of design, most frequently applied in American pulp mills in the past few years, offers the highest evaporative capacity per dollar of investment; and its increased rate of development to a high point of operating advantage is distinctly a product of the depression.

Welded steel or cast iron construction may be used in the bodies and vapor heads; and steel tubes, generally 1¼ to 2 inches in diameter and 14 to 22 feet long, placed vertically, inclined, or in a horizontal position, are rolled into steel tube sheets.

The fundamental principle of this design is the elimination, so far as practical, of the hydrostatic head of liquor on the heating surface, securing a correspondingly lower average boiling point in each effect, a higher working temperature drop and, therefore, a higher evaporative capacity per square foot of heating surface than in the submerged-tube type evaporators. Another important factor is the high vapor velocity caused by the enormous increase in volume due to vapor formation near the entrance end of the tubes, with progressive boiling as the liquor travels through the tubes. In addition, the vapor is restricted to a smaller number of longer tubes than in the submerged-tube types, resulting in further increased exit velocities. These conditions cause a high-velocity filming action on the surface of the tubes, with higher liquor film coefficients and an appreciable increase in capacity. The extent to which these theoretical benefits are realized is influenced considerably by the actual design and application. Generally speaking, on well engineered installations the capacity per square foot of heating surface in the long-tube film type will be in the range of twice that of the submerged-tube evaporators and around one-half that obtained in forced-circulation.

In film type evaporators, the operating conditions must be more accurately predetermined, the proportions of the machine and the design of all details being more important than in other types, except the forced-circulation. The capacities vary sharply with concentrations and temperatures throughout the evaporator; and the arrangement of connections to assure complete and constant circulation with equal distribution to all tubes in each effect, are of prime importance. The vapor bodies are generally smaller and vapor velocities approach the critical point, so a highly efficient means of liquor and vapor separation is one

of the most important factors. Marked advances have been made in recent years in working out these details. This type of evaporator, properly designed for each case, is now adaptable to a wide variety of conditions of temperature, pressure and concentration, and can be built to handle the foamiest of liquors with the very minimum of operating attention.

The film type evaporator is not suitable for use on liquors forming insoluble scale, since the scaling rate is faster than in other types and the long tubes are more difficult to drill out. Where the scale is soluble, the shorter operating cycles are counterbalanced by the speed with which the evaporator can be boiled out, due to the small volume of liquor contained in the evaporator and the ease of manipulation.

Tube replacements are somewhat more difficult in this type of evaporator with its longer tubes, and as a result all the tubes in each unit are usually replaced at one time—corrosion rates being very uniform. The arrangement can be adapted to facilitate this operation and, since replacement of steel tubes is necessary only once in two or three years, it becomes a minor consideration compared to the operating advantages.

Multiple Effect Combinations

The preceding outline of the most important features of different evaporator types, as applied to pulp mill operation, is made with particular reference to the case described in the first part of this paper and so often encountered in present developments. The frequent problem is that of increasing the evaporator capacity in a mill to produce more highly concentrated liquor, using existing equipment as far as profitable. Numerous plans are usually possible, ranging from a revision of the present evaporator operating conditions with little or no additional equipment, to complete replacement of the evaporator with new and modern equipment. The latter course may be obviously desirable, but may be inexpedient all in one step because of the uncertainty of future capacity requirements, present space limitations, lack of immediately available capital, or the possibility of a higher return on the investment in some other part of the mill. Intermediate steps, with provision for the future, then become a problem of connecting evaporator units of the same or different designs into multiple effect combinations. The comparative economies of these combinations, and the important points in applying different types of evaporators in multiple effect, can be brought out by a few typical cases.

It is possible, theoretically, to increase greatly the capacity of an existing multiple effect installation by revising the vapor and liquor piping in order to use the same number of evaporator bodies in a reduced number of effects, at the cost of a considerable increase in steam and water consumption. Thus, four bodies in quadruple effect might be operated as two double effect evaporators or as one double effect with two bodies in each effect; and, in either case, if the full steam pressure were maintained on the steam chests of both units in the first effect and the full vacuum on both units of the second effect, the total capacity would be doubled, theoretically, by having twice the working temperature drops across equal amounts of heating surface. At the same time, the steam and water required per pound of evaporation would be approximately doubled, making the total steam and water consumption under the new conditions, theoretically, four times the previous requirements.

In the actual carrying out of such a scheme, several major difficulties would be encountered and the results obtained would usually be far from the theoretical. If the increased evaporation is to produce a higher liquor concentration, the resulting increased viscosity would make it impossible to double the evaporative capacity with the same equipment at the same steam pressure. This factor would be increased further because of the lower liquor temperature existing in the first effects of the double effect as compared with that previously existing in the first effect of the quadruple. The resulting viscosity would be greater and the actual capacity still lower than might have been expected. In general, however, the capacity obtained would still be appreciably greater, at the cost of greatly increased operating expense for steam and water, but other factors might make such a plan unworkable.

When the temperature drop across the heating surface of an evaporator unit is increased beyond the range for which it was originally designed, the vapor space may prove entirely inadequate for the increased evaporation, resulting in excessive entrainment. Additional separators may help, but often the violent circulation and high velocities set up will disturb the operating conditions too greatly, with entrainment and frequent boil-overs far beyond the practical limits of separation. Such a condition could easily cancel all savings in equipment costs by soda losses, costing more in a few months than a whole new evaporator.

The horizontal-tube evaporator—because of its excessive vapor space per unit of capacity, and the forced-circulation evaporator—because of its high separation efficiency, are more adaptable to capacity increase by the above means than are other evaporator types. The submerged-tube vertical types and long-tube film type evaporators must be held within narrower limits and there is less net gain from greatly increased temperature drops. Because of these factors, it is usually necessary to use some modification of this plan, and several methods are feasible.

If there is available steam at a somewhat higher pressure than that used on the existing evaporator, it is often most feasible to secure the capacity increase by adding one more unit as a new first effect. For example, if a quadruple effect evaporator is operating on 15 or 20 pound steam, the capacity can be increased about 20 to 25 per cent, and a higher density liquor obtained, by installation of one new unit operating on 25 or 30 pound steam—the vapors being exhausted to the previous first effect evaporator unit. In this way, the old units are undisturbed as regards vapor quantities and operate at the same or lower viscosities—which is a favorable condition. The long-tube vertical film type evaporator is well adapted to such an addition, as it can be designed for operation at a very small temperature difference and for the production of fairly high density liquor at the first effect temperature conditions. The total steam and water requirements will be practically the same as under the previous conditions, and will be less per pound of evaporation at the increased capacity, tending to compensate for the power loss of using the steam at a somewhat higher pressure. Controlling factors in this type of application are the possibilities of scaling compounds in the liquor forming scale more rapidly, and increased corrosion rates of steel tubes, both actions being accelerated at more elevated temperatures.

In case the low pressure steam is already in use on the evaporator at its maximum pressure, and it is inadvisable to use steam from a higher pressure stage of the turbine, it will be necessary to make further revisions in the evaporator to secure increased capacity. The addition of one more unit as one more effect will reduce the steam and water requirements, but will not increase the capacity of the multiple effect evaporator. However, if the vapor and liquor piping are rearranged to operate two of the existing units in the same effect, adding one new unit to form a

five body quadruple effect evaporator, a definite increase in capacity will be obtained. The extent of this increase will depend on the liquor density required and the flow of liquor through the evaporator. The steam and water economy of quadruple effect operation will be retained.

A further capacity increase is then obtainable by rearranging two more existing units to form a five body triple effect, at a sacrifice in steam and operating economy. Such a condition will again bring up the question of vapor velocities in each of the old evaporator bodies and this must be decided on the points previously outlined.

The next possibility is the installation of a second new unit, preferably operating as a fourth effect, forming a six body quadruple effect evaporator. Such an installation has one new unit in the first effect, two old units in the second effect, two old units in the third effect and one new unit in the fourth effect. The liquor flow may be arranged for the most advantageous operation and quadruple effect economy of steam and water is maintained.

In making additions to a multiple effect evaporator, consideration must be given to the location of the different types in the system. For example, it is not feasible to place a horizontal-tube unit on the first effect operating under a high steam pressure, because of the construction of the steam chest and the difficulty of preventing leakage of tube gaskets. Neither can this type of evaporator be located where a large amount of flash steam will be generated by introducing hot feed liquor into a high vacuum. The long-tube vertical type, however, is particularly well adapted to this condition, and when added to an existing multiple effect, makes possible some very advantageous revisions in the liquor flow. Forced-circulation units are of greater advantage at higher pressures and for the production of viscous liquors at high concentrations. Conversely, their advantage is less when used on the condenser end of an evaporator, at high vacuum and low temperature, since the advantage of 18-chrome 8-nickel heating surface over steel is much less under these conditions of slower corrosion rates.

A most important consideration in making a revision of this kind is the operability of the resulting hook-up considered as a whole. The final profit obtained from such a change is often determined by the ease of operation to secure the predicted results, and this must be given most careful thought. Frequently it will be found cheaper in the long run to install a complete new evaporator. The old evaporator can be used as "stand-by" equipment, for operation during unusual intervals when an excess capacity is required.

The question of the number of effects in the evaporator is decided, in most cases, by the operating cost versus the investment charge for an increased number of effects. In most pulp mills of capacities between 50 and 100 tons of pulp per day, a quadruple effect will prove profitable operation as compared to triple effect. For over 100 tons per day pulp production, the quadruple effect invariably is the most profitable operation, and in many cases, a quintuple effect will show still further profits. Wherever steam costs are so low that triple effect operation shows a theoretical advantage, the quantity of evaporation usually is so large that a number of triple effect evaporators will be required. In this case, a quadruple effect layout will be very little more expensive—with considerably less operating cost. When such extremely low steam costs prevail, a thorough analysis of the heat balance of the entire plant sometimes will raise the question of whether heat recovery equipment is a profitable investment. It may work out that the most economical operation of such a mill is to do the minimum amount of evaporation necessary for efficient chemical recovery, with no steam generation in the recovery house. However, this type of operation is profitable only in mills enjoying exceptionally low fuel costs, and generating large quantities of power in a high pressure power plant, with an abundance of low cost bleeder steam available for process work.

High Density Operation

Evaporator arrangements for producing liquor densities of 45 to 55 per cent total solids are much the same, but when a higher liquor density is required—generally from 65 to 70 per cent total solids, a different arrangement becomes advantageous. The higher viscosities at these concentrations reduce the capacity of multiple effect evaporators to the point where it becomes profitable to install a separate concentrator unit and operate the multiple effect at a lower density. The most difficult part of the concentration is then carried out in a unit especially designed for this work. The forced-circulation high concentrator with 18-chrome 8-nickel alloy heating surface, is usually the most logical answer to this problem. The unit operates on higher pressure steam—exhausting vapors to either the steam chest of the first effect or second effect unit of the multiple effect evaporator.

An important factor in this connection is the allowable operating temperature to prevent difficulties from scale formation or carbonization of the liquor on the tubes. These actions are influenced not only by the temperature, but by the prevailing concentration of liquor, and the conditions must be determined with both of these factors in mind.

Corrosion

Corrosion rates, controlling the life of evaporator equipment and its maintenance cost during operation, play such an important part in the determination of the best pulp mill evaporator arrangement that any discussion of the problem is incomplete without some consideration of the factors involved.

In alkaline process pulp mills, kraft mill evaporators are subjected to more severe corrosion than evaporators in soda mills. The corrosive reactions of kraft mill black liquor undoubtedly are manifold; and both the liquor and clear, entrainment-free condensate from the vapor are corrosive. The principal reactions in the case of the liquor, are those of sodium sulphide and organic sulphides, forming iron sulphides in contact with steel or cast iron. The vapors contain appreciable quantities of organic acids produced by a certain amount of destructive distillation of the black liquor during the evaporation process, and the action is entirely independent of entrainment in the evaporator. These compounds boil off as vapors, condensing with the water vapor to form an acid solution in the steam chest of the next effect. Some of these acids are sulphur derivatives and the iron sulphide formation usually is more marked on the steam side of the tubes than in the liquor space of the evaporator.

Temperature is an important factor in any corrosion problem, but in the present case, it is doubly so. Reaction rates with the metal are increased by higher temperature and, in addition, the destructive distillation reaction is accelerated, increasing the concentration of corrosive compounds in the condensate. The combined action of these two factors makes temperature most important, and the time-proven rule that chemical reaction rates are doubled for approximately every 10 deg. C. rise in temperature, should not be forgotten in the design of pulp mill evaporator equipment.

There are various opinions regarding the relative resistance of cast iron and steel for body construction of black liquor evaporators, but the trend of the past few years

has been toward welded steel construction. The leak-proof construction possible by welding methods has had much influence. Another important factor is the improved quality and uniformity of steel plate in recent years. Cast iron appears to have equal or better resistance to the corrosive action of vapors; but where there is present an erosive action, steel construction has shown, in several instances, two or three times the life of cast iron fittings and piping, and at points of high turbulence in the evaporator bodies.

The corrosion of tubes and tube sheets is more severe than that of other parts, due to the acceleration of reaction rates at points of heat transfer through the metal. It is here that the formation of iron sulphide takes place most rapidly on the steam side, and that the most severe erosion is encountered on the liquor side of the tubes. Consequently, the replacement of steel tubes constitutes the principal maintenance cost in pulp mill evaporators.

Stainless steels, of the 18-chrome 8-nickel compositions, are thoroughly resistant to both these corrosive actions. Actual installations in kraft mills, with six years of continuous operation under the most severe conditions of temperature, concentration and erosion, show no discernible deterioration whatever on the surface of tubes of this metal. The only obstacle to its widespread use in the tubes of kraft mill evaporators is its cost, which is in the range of eight to ten times the cost of steel tubes. Since thinner gauge tubes can be used than in the case of steel tubes, the net cost increase is not quite proportionate. However, an idea of the relations is gained from the fact that the usual increased cost for substituting stainless steel tubes and tube sheets for regular carbon steel in a film type evaporator, is greater than the cost of the entire evaporator equipment with carbon steel tubes.

The opportunity for one of the greatest improvements in pulp mill evaporators at the present time, lies in the introduction of some metal lower in cost than 18-chrome 8-nickel and having better corrosion resistance than steel. Copper and most of its alloys are not resistant to sulphide corrosion. Alloys of low chromium and nickel content have been tried, but to date there are no generally known cases of satisfactory proof that their life is sufficient to justify the increased cost. There is great need of an alloy having a resistance to corrosion in pulp mill evaporators of six to eight times the resistance of steel, and suitable for the manufacture of tubes costing not more than three to four times the cost of steel tubes. Such a metal—after thorough proof of its resistance in actual operating installations—would meet with wide acclaim and find a ready and profitable market.

Factors Governing Heat Transfer Through Drier Shells*

By F. C. Stamm[1]

Abstract

The first of a series of papers to be prepared by the TAPPI Heat and Power Committee on the fundamentals of paper drying. This paper deals with the variables that affect heat transfer. The most important are (1) the accumulation of air within the drier and (2) the percentage of moisture in the sheet leaving the wet end of the paper machine.

The Drying Committee of the Technical Association of the Pulp and Paper Industry, during the past five years, has been endeavoring to standardize drier performance and has collected some very interesting data on the drying rates of various grades of paper. This work still continues and we hope some day to have standards on all grades of paper in such shape that the average mill man can judge for himself whether or not his drying equipment is functioning satisfactorily. We know the data thus far collected is actually being used since we have received numerous inquiries from individuals who find their drying equipment operating far below standard, and who are interested to know how to go about correcting the trouble. We have thus been brought to realize that many still lack the understanding of the factors that govern heat transfer through drier shells.

There seems to be a real need for a more thorough understanding of these fundamentals. The matter of drier drainage has long been shrouded with mystery and each individual has exploited his pet ideas and theories until the whole matter is so confused that the average man has considerable trouble determining what is good and what is bad practice. There are any number of instances that can be cited where perfectly good drainage systems were thrown out and replaced with other systems which functioned absolutely no better.

To treat this subject as it should be handled would require much more time than could possibly be given to a single paper at this time. It has therefore been decided to divide the work into four or five separate parts, presenting the first part at this meeting and following with the others later on during the year. These parts are as follows:

1. Factors governing heat transfer.
2. A discussion of the various equipment and systems in use.
3. Ventilation and its effect on drying.
4. The effect of drying on sizing, color, strength and so on.
5. The future trend in drying paper.

You will note that no attempt has been made to consider the question of moisture control since this is entirely independent of drainage control, but it is the Committee's intention to also consider this question after it has covered the drainage field.

Fundamentals of Heat Transfer

The question of heat transfer through drier shells was considered in a paper presented by the Heat and Power Committee at the annual meeting 1931. (*3*)

* To be presented at the annual meeting of the Technical Association of the Pulp and Paper Industry, New York, N. Y., Feb. 18 to 21, 1935.
Contribution of the TAPPI Heat and Power Sub-Committee on Heat Utilization in Pulp Drying and in Making Paper and Paperboard.

[1] Member TAPPI, General Superintendent, The Upson Co., Lockport, N. Y.

At that time factors which govern heat transfer were listed as follows:

1. Oil and scale on the inside of driers.
2. Rust and size accumulation on the outside of driers.
3. Water film on the inside.
4. Air film on the outside.
5. Circulation within the drier.
6. Accumulation of condensate within the drier.
7. Accumulation of air within the drier.

In this investigation we definitely concluded that the first six items in this list had no material influence on the drying rate in the average paper mill and thus could be disregarded. However, we definitely proved that the accumulation of air within the drier—even to a small amount—would seriously reduce the drier capacity. We further concluded that the importance of air in driers was many times overlooked since it is a rather difficult problem to determine the presence of a small percentage of air. We found that the quickest and simplest way was to take the temperature of the drier with a surface pyrometer. If this temperature is more than 10 degrees below the thoretical steam temperature inside the drier, you can be reasonably sure that air is present, with a corresponding decrease in drying efficiency. Remember that the average heat head between the drier surface and the evaporating temperature of the sheet is around 40 degrees and that even a small drop of only 5 degrees has reduced the effectiveness of this drier about 12 per cent. It is a very easy matter to spot those serious offending driers whose siphon pipes are broken off or are ineffective for other reasons, but the slightly air-bound driers which are operating from 10 to 20 per cent below normal are almost impossible to spot without the aid of a surface pyrometer.

The Effect of Moisture in Sheet Going to the Driers

Very few of us realize the importance of knowing the moisture content of the sheet going to the driers before an attempt is made to judge the drying efficiency. Slight changes in furnish, in the freeness of the sheet, in the felts and in the presses will vary this moisture from 62 to 68 per cent and from all outward appearances, the sheet still looks the same.

If you increase your wet and moisture from 62 to 68 per cent, you have increased the amount of water to be evaporated approximately 30 per cent, and in order to do this it is either necessary to raise the steam pressure or slow down production. I am sure that the average mill man does not realize that a 6 per cent increase in moisture at the wet end will cause a 30 per cent increase in the amount of water to be taken out of the sheet. Every mill should take consistent and regular samples from the wet end of the machine so that a complete and accurate record is kept. Many times the drying system will get the blame for low production when the trouble really lies in the manipulation of the wet end.

The question of temperature in the sheet entering the driers has been the subject of much discussion but it is safe to say that an increase of 20 to 30 degrees will show absolutely no effect whatever on the drier capacity. It will have a small effect on the amount of heat required per pound of paper and this saving will be in proportion to the 20 degrees increase, which is equivalent to 20 B.t.u. out of a total heat of 1100 B.t.u., thus the saving is relatively small and I believe would never be found in the average paper mill.

There is an effect, however, from increasing the temperature on the wet end which might well be brought out here and that is the improvement in the couching or water-removal properties of the wet sheet. The viscosity of water drops very rapidly with an increase in temperature and with all conditions being equal, an increase from 65 to 85 degrees will enable you to remove more water and probably reduce the moisture content going to the drier from 2 to 3 per cent. This naturally will help drying.

The Effect of Moisture in Sheet Leaving the Driers

The moisture content of the sheet leaving the driers also has a very marked effect on the drying capacity. A range of moisture content from 2.5 to as high as 10 per cent is common in practice. A decrease of dry end moisture from 9 to 5 per cent will increase your water evaporation approximately 7 per cent. Thus the actual effect of moisture variation at the dry end is nowhere near as serious as on the wet end. However, there is another factor on which we have very little information at the present time and that is the insulating effect of the sheet at low moisture contents. With moistures under 5 per cent, all free water has been driven off and the sheet begins to act as an insulator, thus making the removal of the last 2 or 3 per cent very difficult. If you are drying down around 3 per cent, you may feel sure that you will show a very marked increase in drying rate if you will bring the moisture up to around 6 per cent.

Effect of Steam Pressure on Drying Rate

It is interesting to see the wide range of pressures with which paper is dried. The Minton vacuum drier operates down around 26 to 28 inches of vacuum. The average news machine will operate around 10 pounds' steam pressure. Board is dried around 20 to 40 pounds and we have had some instances where steam pressure as high as 150 pounds have been reported. Actually, the drying rate is going to be in proportion to the steam pressure, or rather, let us say, in direct proportion to steam temperature. Yet we know that very few people can actually determine what a 5 pounds' increase in steam pressure will do on their particular machines. The recent and projected work of the Drying Committee aims to provide data to answer such questions, and we believe the results which we have tabulated are accurate within a reasonable degree, yet we see this work completely disregarded by individuals who still base their comments on more or less snap judgment. Recently, in a published article, a certain individual was asked how much he expected to increase production by increasing the steam pressure from 5 to 10 pounds. He quickly answered, "4 per cent," although the drying curves which TAPPI have published (*1*), (*2*), (*4*) show that this increase might actually be around 27 per cent. A rough summary of this material might be tabulated as follows:

Increase in Steam Press.	Increase in Steam Temp.	Estimated Increase in Production (Per cent)			
		News	Kraft	Board	Avg.
0— 5 pounds	15 deg.	35	..	..	35
5—10 pounds	12 deg.	21	32	28	27
10—15 pounds	11 deg.	15	23	20	19
15—20 pounds	9 deg.	12	15	15	14
20—25 pounds	8 deg.	8	12	10	10
25—30 pounds	7 deg.	..	10	7	8

It appears clearly from this tabulation that as the steam pressure goes up, the effectiveness very rapidly decreases. With the amount of data available, we believe there is no reason at all why the average mill man cannot determine for himself what his drying conditions are and whether or not he is getting all the production he should for the steam pressure he is carrying on the machine.

Effect of Machine Characteristics

There are a number of machine variables all of which have some definite bearing on drying rates and which we

will try to discuss. First of all is the thickness of the drier shell. The average 4 foot drier has a wall thickness of around 1¼ inches and on the large 12 feet diameter Yankee driers this thickness goes up to 2½ inches. The thickness of the shell naturally has a definite effect on the transfer of heat. But in the average drier the rate of heat transfer is comparatively low and changing the thickness of the shell even as much as 1 inch will have a very slight effect on the actual drying capacity of the machine. This point will be discussed more thoroughly later on in the paper.

Type of Metal in Drier Shells

Another point which is very often brought up is the type of metal used in drier shells, the contention being that an alloy of copper with the cast iron would be much more efficient. The heat coefficient of cast iron is 27 while that of copper is 220 so you would naturally expect a copper drier to transmit heat much faster than a cast iron one. As a matter of fact, with an average drop of 12 degrees through a cast iron drier shell, the same drier made of solid copper would have a drop of only 1½ degrees. Now offhand you would say that this is of great importance but let us study the actual process of evaporation by referring to Fig. 1.

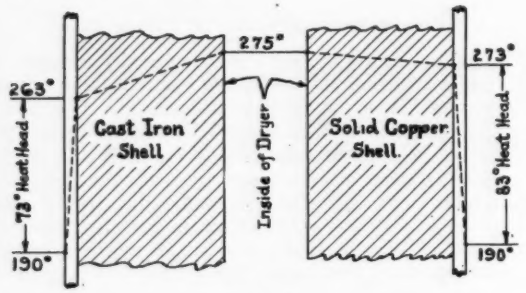

FIG. 1

In the above sketch we start with a steam temperature on the inside of the drier of, say, 275 degrees. Considering a drop through the cast iron drier shell of 12 degrees will give you an outside surface temperature of 263 degrees and with an evaporating temperature of the sheet of, say, 190 degrees you will have a total heat head of 73 degrees for doing active work.

Now with this same drier constructed of copper and considering a drop of only 2 degrees through the metal, the outside surface temperature would be 273 degrees, which would give you a heat head of 83 degrees or an increase of 14 per cent. This 14 per cent increase in heat head would probably result in an actual increase in production of 10 per cent. A solid copper drier would be impractical for many reasons. Alloys of cast iron and copper will, of course, reduce this percent saving in proportion to the percent of cast iron present and you can readily see that the small increase in efficiency would nowhere justify the additional cost of manufacturing.

The real offender which offers the greatest resistance to the heat transfer is not the drier shell or the water film on the inside, but that invisible air film between the paper and the drier, and the natural resistance of the felted sheet of paper itself. Increasing the ability of the metal to transfer heat will only in a small way compensate for the poor conductivity of the paper. It would therefore seem that for some time in the future we will continue to have cast iron drier shells.

Just a word might be said here concerning the condition of the inside surface of a drier. There seems to be a popular belief that a turned surface is much better for heat transfer than the plain cast surface, but I believe it would be very hard to prove much actual benefit from this procedure. Practically all modern driers are turned on the inside but this is done to balance the driers so they will run true at the higher speeds rather than to improve heat transfer.

The effect of the diameter of the drier and the width has been discussed many times. There is no question but what the larger the diameter of the drier, the better the drying efficiency due to the fact that the sheet is in contact with the drier for a longer period of time. The effect of width on drying seems to have very little if any effect on the drying rate or heat transfer. It is true, I believe, that the wider machines have more trouble controlling a constant moisture across the entire width but this is due, fundamentally, to wet end conditions and not to uneven drying. As far as we know, it is impossible for a drier section to dry wet streaks in a sheet of paper. 99 per cent of all these troubles can be traced directly to the wet end.

The question of the effect of arc of contact on the drier is also open for comment. Theoretically, increasing the arc of contact should dry more paper but although we realize this is true, still from data which we have collected, we find it almost impossible to consistently put our finger on any definite advantage gained from having a slightly greater wrap. One way we explain this is that the surface which is not in contact with the paper is regaining heat during that short interval which enables it to give up a little more heat when it again comes in contact with the paper, and this sort of minimizes the advantage of actually keeping the paper in contact with the drier for a little longer time.

Advantage of Vertical Stack Drying

Just a few comments concerning the advantage of vertical stack drying over the regular two or three deck arrangements. From all the figures which we have been able to collect, there is very little real increase in drying rate on the vertical stack driers. This would seem obvious since vertical stacks can help drying only by improving ventilation and this improvement can be accomplished on the multiple deck layouts by blowing hot air into the pockets.

Conclusions

There are many other variables which affect the drying of paper but we have left the discussion of these variables to be taken up in their proper place in subsequent reports. The intention of this paper was to try and discuss only such variables as directly influence the rate of heat transfer.

Of the variables affecting heat transfer, there are really only two which have a marked effect on the drying rate and these are first and most important, accumulation of air within the drier and second, which is almost as important but many times underestimated, the percentage of moisture in the sheet leaving the wet end. If these two variables are watched closely, we feel the average mill should have no trouble whatever in obtaining a production which would be very close to the standard set up by the Technical Association.

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The Taylor Press Roll Load Recorder*

By Frank Ward[1]

New instruments and new applications for old instruments are being developed constantly. Many of these new things are the result of demand from industry itself and we recognize the ingenuity and foresightedness of technical men in industry of all types, because a good many of the improvements in temperature, pressure and flow equipment in recent years have been suggested by users.

Among new applications for the paper industry by our company are the Taylor pulp grinder temperature control and the Taylor automatic sulphite digester control. These have been quite successful as an aid to uniformity in the production of both mechanical and chemical wood pulp.

It is safe to say that the paper machine is one of the largest, most complicated and expensive production units in the industrial world. The machine tender has a very complex job with practically all of his adjustments and changes in operating conditions being based almost entirely on past experience, with very little means for definitely reproducing previous conditions. With this idea in mind, the press roll load recorder was developed so that the large variable in machine operation due to improper and inefficient weight adjustment at the wet presses could be held within closer limits and be reproducible.

This instrument is the result of several years' study and experimentation. The first installation under actual operating conditions was made in a mill in April 1932. This instrument is still in service in the same mill and has proven its efficiency and also its ability to withstand the normal stresses and strains encountered on such an application.

A Pressure Instrument

The press roll load recorder is a pressure instrument of the two-pen type, operating on a basically new principle. It resembles a recording thermometer in appearance, but each connecting capillary tube ends in what we call a load element instead of a temperature sensitive bulb. The load element is installed as a part of the tension rod between the top roll bearing and the short fulcrum arm. That is, the tension rod is cut and rethreaded with enough of it being removed to accommodate the element which is about 15 inches long. The load put on this element by moving the weight across the longer fulcrum arm is measured directly in pounds on the chart of the instrument proper. Thus the chart reading is the total weight applied externally to the top roll bearing. You will, of course, understand that a load element is installed on both the front and back of the machine so that simultaneously the pressure at both ends of the roll is recorded.

Now, theoretically, at least, the same pressure is desired at both front and back bearings, but we realize there are many things that might upset this balance of pressures. However, if your superintendents knew that today your machines were run with anywhere from 200 to 1000 pounds more pressure on one side of the press roll than on the other, I am sure they would be somewhat alarmed. Yet, every installation we have made has shown these variations when the mill personnel thought they had equal pressure front and back. A typical example of actual variations encountered might be of interest. In this case the machine tender did not have access to the chart and he was told to adjust his weights in the usual manner. He did this by moving the 50 pound weight six inches from the end of the lower fulcrum arm on both ends of the press. The chart showed 1900 pounds on one bearing and 2500 pounds on the other, whereas, for that particular sheet they had actually wanted approximately 2500 pounds on each end of the press. It was necessary to move the weight on the end that had showed 1900 pounds until it was 2¼ inches from the end of the fulcrum arm so as to raise the pressure up to approximately 2500 pounds. This same experience is the rule rather than the exception and appears to be common to most presses.

Felt and Steam Economies

It is generally recognized that felt life is almost directly proportional to the frictional wear put upon it (Kenwood Bulletin No. 34). Uneven frictional wear caused by unbalanced weight adjustment such as is commonly encountered certainly means decreased felt life and the load recorder with its written record 24 hours a day can be used as a means toward eliminating this abuse. A reduction of 5 to 10 per cent in felt cost is not an unreasonable result to look for from proper use of the information supplied by the load recorder. This figure in itself may not appear large, but it would amount to a considerable sum if based on yearly tonnage and felt cost.

Steam cost per ton is the next item that is directly effected by weight adjustments at the presses. There can be no question but what more water would be removed from the sheet at the second press if the pressure applied to both bearings were four thousand pounds instead of three thousand. Yet how many of your superintendents actually know what pressure they are using and why that particular weight adjustment is used? An interesting point in this connection has to do with a mill making 40-pound cover stock. When the load recorder was installed their customary weight position gave about 3000 pounds pressure. This pressure was gradually stepped up in 200-pound increments until they found they could very nicely run that particular grade with 5200 pounds on front and back bearings. To complete this story, I might say we had to build a special instrument for them because the standard range is 0 to 5000 pounds. Now, if we can use the figure of one per cent reduction in water content of the sheet as it goes to the drier section as effecting the drying cost approximately 5 per cent, it is very evident that the steam cost per ton is materially reduced in that mill on that grade of paper. I do not believe any more examples of this nature are necessary to get across the point I am trying to make. Before we leave this part of the picture, however, it would be well to mention that any mill must determine the proper weights to carry for each definite grade and operating condition. Once these figures are established they are readily duplicated.

In practice it would perhaps be more exact to say maximum pressures should be determined and adjustments made so that a pressure as near as possible to the maximum should be used. This enlargement on this point is mentioned because we do not mean to infer that a given weight adjustment is the best under any and all operating conditions. Probably no detail on a machine can be as rigidly cataloged as that, and certainly press adjustments, even with the load recorder in use, will still re-

* Presented at the meeting of the New England Section of the Technical Association of the Pulp and Paper Industry, Holyoke, Mass., Nov. 16, 1934.

[1] Taylor Instrument Companies, Rochester, N. Y.

quire experience and judgment on the part of the machine tender. However, it is a real tool in the operator's hand from which real results are possible if he studies the record supplied by the instrument and properly applies that information.

There are some advantages from the use of the press roll load recorder that are not quite so tangible but nevertheless important. The first of these has to do with the press roll itself. Balanced pressures, when it is physically possible to run under this ideal condition naturally mean less severe service for the rolls, longer life and more even wear. I am sure the manufacturers of the rolls will welcome the general use of such an instrument as it will surely mean fewer complaints from their customers.

It is generally agreed that sheet characteristics are effected by the pressure carried at the presses. A duplication of pressures on each shift and from day to day on the same grade of paper must mean duplication or more nearly so, in sheet characteristics such as density, opacity, shrinkage and tensile strength. In addition, at least theoretically, such a sheet should finish more uniformly.

Uniform and proper press adjustment should tend toward leveling out the load on the driers which would absorb some of the variables the drier control is now trying unsuccessfully to overcome. We all know that machine control is a problem and anything that will make it any easier should be a welcome addition.

TAPPI Stuff Preparation Symposium in Feb.

The pulp and paper companies that hope to be in business for several years to come are now giving particular attention to their stuff preparation (beating, jordaning and refining) problems. To assist in this important study the Stuff Preparation Committee and the Fundamental Research Committee of the Technical Association of the Pulp and Paper Industry are preparing a program of outstanding merit for the annual meeting at the Waldorf-Astoria Hotel, New York City, on February 21, 1935.

The Fundamental Research Committee is composed of Harry F. Lewis, Chairman, Institute of Paper Chemistry; E. E. Berry, Beloit Iron Works; W. Boyd Campbell, Canadian Forest Products Laboratories; R. D. McCarron, Escanaba Paper Company; Frederick Olsen, Cellulose Research Corporation, and F. C. Peterson, New York State College of Forestry. This committee is part of the TAPPI Research and Development Division of which C. E. Curran, U. S. Forest Products Laboratory, is general chairman and D. W. McCready, University of Michigan is vice chairman.

The papers sponsored by this committee are as follows:

1. The Effect of Temperature on the Beating of Rag Stock, by H. F. Lewis and LaVern A. Gilbertson of the Institute of Paper Chemistry, Appleton, Wis.

A temperature controlled Noble & Wood 20 gallon beater was used in a study of the changes taking place in the beating characteristics of rag stock as the result of variations in temperature between 6 and 85 deg. C.

The results indicate that the rate of beating is somewhat faster at 25 deg. C. than at either 6 or 45 deg. C., while the slowest beating of all takes place at 85 deg. C. By rates of beating is meant the time required to reduce the stock to a given freeness under controlled beating.

Hand sheets made from the stock beater at 6 deg. C. have folds of 6125, tear (16 sheets) of 182, Mullen of 49, and tensile of 12.42 pounds. Those beaten at 85 deg. C. show the following values for the same tests: folding endurance 240, tear (16 sheets) 125, Mullen 28, tensile 9.33 pounds.

Chemical constants, such as alpha cellulose, copper number, and viscosity are unaltered either by the time or temperature of beating.

Photomicrographs at the point of Mullen rupture show that such a rupture occurs in the cold beaten stock by the fibers pulling out; with the hot beaten stock the fibers appears to be brittle and the break results from the fracture of the fibers as well as fracture of cementing material.

2. A Procedure for Investigating the Relation of Freeness and Fiber Size to the Hydration of Stuffs, by F. A. Simmonds and P. K. Baird, U. S. Forest Products Laboratory, Madison, Wis.

A procedure has been developed for studying the effect of fiber size and "hydration" in relation to the freeness test. Dehydration of beaten pulp has been effected by treatment with common organic solvents without changing the response to the fibers to rehydration upon subsequent contact with water. Thus the particular influence of water as it affects the freeness test is eliminated. A device is described for determining the so-called equivalent pore radius of fiber mats before and after dehydration.

3. A Summary of Recent Literature on Hydration, by F. A. Simmonds, Madison, Wis.

The theories advanced during the past twelve years by English, Continental, Canadian, and American experimenters as to the nature of the changes occurring when pulps are processed mechanically, are briefly reviewed.

The Stuff Preparation Committee is made up of the following: D. Manson Sutherland, Chairman, Trenton, N. J.; G. Lamont Bidwell, Riegel Paper Corporation; H. W. Bialkowsky, Neenah Paper Company; James Coghill, Noble & Wood Machine Company; Jacob Edge, Downingtown Manufacturing Company; Carl Fahlstrom, Longview Fibre Company; R. E. Hayes, Ontario Paper Company; G. F. Feeley, E. D. Jones & Sons; E. L. Keller, Forest Products Laboratory; G. F. McCrea, Mead Corporation; Clifford Patch, Eastern Manufacturing Company; F. A. Simmonds, Forest Products Laboratory; and R. A. Wilkins, Bird & Son.

The papers sponsored by this committee are as follows:

4. Beating from the Standpoint of Control and Design, by A. B. Green, Consulting Engineer, Needham, Mass.

The Hollander will eventually be supplanted, since it is awkward, ponderous and expensive. How may beating be measured? Inch-cuts per minute, beater circulation coupled industry, microscopical analysis, are limited by not having been related by investigators with paper making qualities; limited also by time. Slowness or freeness are not measures of degree of beating except in limited circumstances.

Small equipment run by fractional horsepower motors can result in fundamental data which is the engineering basis for design. Beaters can be scientifically projected and well designed.

5. Beater Control, by G. D. J. Ormsbee of the Toledo Scale Company, Toledo, Ohio.

6. Simplified Terms and Viewpoint on Stuff Preparation, by D. Manson Sutherland, Consulting Engineer, Trenton, N. J.

7. Paper Stock Treatment, Mixing and Beating with Rods, by S. D. Wells, Combined Locks Paper Company, Combined Locks, Wis.

8. Relationship of Stuff Preparation Theories to Practice, by Harry Williamson, Consulting Paper Making, Robert Gair Inc., New York, N. Y.

9. Beating versus Jordaning in Stock Preparation by R. D. Kehoe, Paper and Industrial Appliances Inc., New York, N. Y.

10. The Adverse Function of Gases in the Manufacture of Paper, by J. A. De Cew, Process Engineers Inc., Mt. Vernon, N. Y.

A review of the foregoing program will convince anyone familiar with the present state of the art of stuff preparation that at no time before in the history of the industry has such an excellent program of discussion been arranged. The galaxy of opinions related to this subject will "go to the mat" at the annual meeting of the Technical Association, February 18 to 21, 1935. Anyone interested to attend is welcome to do so.

Berry Paper Stock Co. Chartered

TAUNTON, Mass, January 7, 1935—The Berry Paper Stock Company, Inc., has been incorporated. Capital stock is 50 common shares of no par value. James Berry is president; Ann H. Berry, treasurer, and Charles S. Berry is the third incorporator.

Paper Manufacturers at TAPPI Meeting

A program of particular value and interest to paper mill superintendents will feature the annual meeting of the Technical Association of the Pulp and Paper Industry at the Waldorf-Astoria in New York on February 18 to 21, 1935.

On Tuesday, February 19, the Operating and Engineering Divisions will jointly sponsor a program dealing with the fundamentals of paper manufacture.

The Heat and Power Sub-Committee on Pulp and Paper Drying which is composed of A. E. Montgomery of J. O. Ross Engineering Company, Chairman; F. W. Adams, Massachusetts Institute of Technology; J. C. Harper, West Jersey Paper Corporation; F. C. Stamm, Upson Company; and V. F. Waters, Wrenn Paper Company, will present two papers:

The Drying Rates for Tissue and Absorbent Papers, by A. E. Montgomery, J. O. Ross Engineering Corporation.

Factors Governing Heat Transfer in Paper Drying, by F. C. Stamm, the Upson Company.

The Materials of Construction Committee, composed of J. D. Miller, York Haven Paper Company, Chairman; James Rogers II, J. & J. Rogers Company; G. F. Alcorn, Weyerhaeuser Timber Company; J. D. Corfield, Michigan Steel Castings Company; C. L. Johnson, The Upson Company; F. L. La Que, International Nickel Company; J. A. Lee, Chemical and Metallurgical Engineering; J. N. McGovern, Forest Products Laboratory; G. H. McGregor, Weyerhaeuser Timber Company; E. H. Niederauer, Dill & Collins Inc.; G. W. E. Nicholson, Southern Kraft Corporation; A. F. Richter, Stebbins Engineering and Manufacturing Company; Fred Schorken, St. Regis Paper Company; and B. F. Shepherd, Ingersoll-Rand Company, will conduct a symposium on fourdrinier wires:

The Requirements of Materials for Fourdrinier Wires, by H. E. Brown, W. S. Tyler Company.

The Use Requirements of Fourdrinier Wires, by F. G. Wheeler, Kimberly-Clark Corporation, and F. L. La Que, International Nickel Company.

The Laminating Committee which is composed of H. P. Cannon, Container Corporation of America, Chairman; E. N. Wennberg, Continental-Diamond Fiber Company; R. B. Brown, Trenton, N. J.; C. M. Connor, Glassine Paper Company; C. J. Johnson, Upson Company; R. Morehouse, Philadelphia Quartz Company; H. E. Patterson, Chicago Mill and Lumber Company; C. A. Plaskett, Forest Products Laboratory; N. H. Sandberg, Waldorf Paper Products Company; and G. R. Wyman, Bird & Son, will sponsor the following paper:

The Use of Adhesives for Laminating Operations, by Russell Morehouse, Philadelphia Quartz Company.

The Coarse Paper Manufacture Sub-Committee, which is made up of G. D. Bearce, chairman; W. A. Chilson, Forest Products Laboratory; A. M. Lund, Mazer Paper Company; N. L. Malcove, Marinette and Menominee Paper Company; M. M. Rubin, Fraser Cos. Ltd.; B. T. McBain, Portland, Ore., will sponsor the following papers:

Paper Machine Water, by L. M. Booth, Booth Chemical Company.

Influence of the Head Box and Slice on Sheet Formation, by G. D. Bearce.

Admission of Stock to the Fourdrinier Wire, by A. B. Green, Needham, Mass.

This is the first time that the Technical Association has arranged a meeting exclusively devoted to paper machine operating and engineering problems. The steadily increasing group of practical paper mill superintendents will lead to programs in the future that will concentrate attention on the variables of the paper machine.

Every paper mill superintendent in the industry is cordially invited to attend and participate in this meeting of the Technical Association.

Hearing Jan. 15 on Labor Markup Provisions of Paper Distributing Trade Code

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., January 9, 1935—Members of the paper distributing trade will be given an opportunity at a public hearing January 15 at the Carlton Hotel, Washington, to tell the National Recovery Administration of their experience with the code provision requiring them to include replacement and labor costs in their sales prices.

The Code Authority has asked the National Industrial Recovery Board either to extend the present code section, and the administrative orders setting labor cost allowances as required by the section, or to approve a revised code provision to be effective until June 16, 1935.

The present section originally was made effective until July 1, 1934. The effect of several administrative orders has been to extend it until January 31, 1935, with the labor cost allowances established by authority of the code.

In the present section, sale below the replacement cost is declared to be an unfair trade practice. The section reads, in addition, that "the selling price of merchandise should include an allowance for actual wages of labor". A revision offered by the Code Authority would rephrase the whole section and make the inclusion both of replacement and labor costs mandatory upon the seller.

The code divides the trade into seven regions. Prices are reported in some regions; they are not reported in others. The code provision enabling members filing prices to meet competition in areas where prices are not filed would be revised to read as follows:

"A member of the trade may sell any article of merchandise in a geographical region, as established by the Code Authority, at a price as low as the price at which merchandise which is the same as to comparable competitive factors such as quality, quantity, brand, weight, color, grade, substance, strength, thickness, finish or material content, is then being offered or sold in said geographical region by any other member of the trade, if such other member of the trade's price complied with the provisions of this code including but without limitation subsection (a) of this section, provided, however, that if such competition be met in a geographical region where the filing of prices for sales of such merchandise is not then being made under this Code then a complete description of any offer or sale in meeting such competition shall immediately be made to the Code Authority in such form and detail as it may prescribe.

"Bona fide quotations made by a member of the Trade hereunder may be maintained by such member of the Trade for five days after making thereof."

Another paragraph of the revised section would empower the Code Authority, subject to approval of the National Industrial Recovery Board, to prescribe the methods for determining replacement costs.

The following percentages of replacement costs now are in effect as the allowances for labor costs, to be included in sales prices:

Fine paper—warehouse sales, twelve percent; indirect sales, three percent; direct sales, two percnt.

Wrapping Paper—warehouse sales, nine percent; indirect sales, two percent; direct sales, one percent.

The American Brass Co. Joins TAPPI

The American Brass Company had its beginnings more than 75 years ago with the establishment of four firms whose names figure largely in the early history of brass making in the United States. A. Benedict & Co. and Holmes & Hotchkiss were started in Waterbury in 1823. A few years later the Wolcottville Brass Company was started in Torrington and by 1840 the Ansonia Brass and Copper Company was operating a mill in Derby, Conn. These were separate enterprises engaged in the manufacture of buttons, brass sheet and wire. They were typical of the industries of New England of the time.

The growth and evolution of the nation's business was reflected in the growth and development of the brass mills of Connecticut. Combinations were effected from time to time finally culminating in the formation of the present American Brass Company in 1912. Other mills and related manufacturing firms have been added since then. The company now has active plants at Waterbury, Torrington and Ansonia in Conn., at Buffalo, N. Y., Detroit, Mich. and Kenosha, Wis. There is an affiliate in Canada the Anaconda-American Brass Limited, operating one of the most modern brass rolling mills in the world at New Toronto, Ont. Subsidiaries make, among other things, small diameter tubes, drawn cups, shells, stampings and eyelets, and flexible metal hose.

The company's products embrace all commercial forms of wrought copper and a wide variety of copper alloys. Among them are sheets, plates, strip, bars, rods, wire, extruded shapes, forged and die cast parts, tubes and pipe. Some of the metals possess softness and ductility, some are hard and rigid, still others have high strength combined with generous elastic properties. All are resistant to corrosion attack although to varying degrees in varying exposures. The common wrought alloys of copper include those containing zinc, tin, nickel, cadmium, aluminum, silicon, manganese, lead and combinations of two or more of these metals. Beryllium copper is a recent addition to the list. It has some remarkable properties.

The paper industry has used copper, brass and bronze in one form or another for many years. A large part of its requirements have come from The American Brass Company who have cooperated with paper mills and their sources of supply in developing metals suitable for pipe lines, punched or sawed screens, doctor blades, print and drier rolls, fourdrinier screen wire, grinder parts, to mention some of the more commonly used items.

Everdur, a copper-silicon-manganese alloy (96-3-1) is one of the newer alloys to interest the paper industry. It is a moderate priced metal made in all commercial forms and sizes from tank plates to wire. It has the physical properties of mild steel, can be worked hot or cold, forged, drawn, and welded by all the common methods. Another interesting alloy is beryllium-copper, already mentioned. This alloy is manufactured in sheets, strip, rods and wire and attains a remarkably high strength and wear resistance as a result of heat treatment. A No. 14 B&S wire hard drawn and heat treated will test approximately 180,000 pounds per square inch in tension with an elongation of 2 per cent in 2 inches.

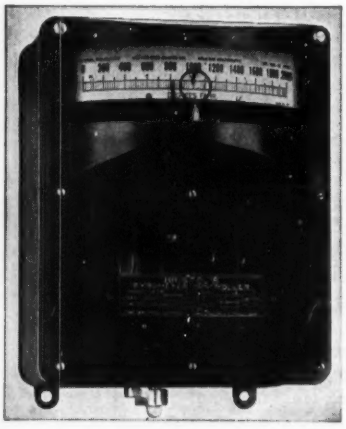
In addition to manufacturing a complete line of filler rods for oxy-acetylene welding The American Brass Company has developed a phosphor bronze welding rod (Anaconda phosphor-bronze D) and a technique of carbon arc welding which is being widely used in the fabrication of copper tanks, vessels and pipe lines. Welds are made in the shop and field by this method that have practically the strength of annealed copper, and are ductile. The embrittlement that characterized most copper welding in the past is overcome by the rapidity with which these welds are made. The same welding rod has been found useful in many other applications notably the building up of worn machine parts.

The company maintains a large staff of technically trained men. It has chemical, metallurgical and physical testing laboratories in Waterbury and at each of the outlying mills. In addition research work on the development of new alloys, and their application to the changing methods of construction, is constantly going on. The Technical and Engineering Departments will gladly assist in the selection and adaptation of non-ferrous metals to the exacting needs of modern industry.

The American Brass Company will be represented in the Technical Association of the Pulp and Paper Industry by James T. Kemp, Service Engineer.

New Pyrometer Controller

Bristol's new Pyrometer Controller, Model 478, possesses "degree-splitting" characteristics that permit an unflinching check over any heating process. Precision "shear-



edge" action of the working mechanism raises product quality to new standards of uniformity.

Model 478 has several outstanding features: (a) clean, non-arcing, non-oxidizing, non-corroding mercury-to-mercury electric contacts, sealed in glass; (b) no need for relays; (c) operating mechanism always visible; (d) accessibility of telechron motor, mercury switches and terminal block, simplifying field inspection without exposing control mechanism to dirt, fumes, or misalignment; (d) full safety features; (e) accurate control; (f) simple and rugged working parts.

Ask Receiver for Vincennes Box Co.

DAYTON, Ohio, January 7, 1935—Suit was filed last week in Common Pleas Court asking for the appointment of a receiver for the Vincennes Folding Paper Box Company, of Miamisburg, by H. B. Brenbarger and Mayme Brenbarger, 31 Jones street, Dayton.

It is set forth in the petition that H. B. Brenbarger is president of the company, which is solvent, and that the plaintiffs own the majority of stock.

Disagreement among the various officers of the concern and the allegation that they usurped powers in the management of the business, which belongs to others, are the basis of the suit, according to the petition.

IMPORTS OF PAPER AND PAPER STOCK

NEW YORK, BOSTON, PHILADELPHIA AND OTHER PORTS

NEW YORK IMPORTS

WEEK ENDING JANUARY 5, 1935

PAPER HANGINGS

W. H. S. Lloyd & Co., American Trader, London, 2 cs., 2 bls.; W. H. S. Lloyd & Co., American Merchant, London, 2 bls., 1 cs.

NEWSPRINT

American Newspapers, Inc., Markland, Liverpool, N. S., 901 rolls; N. Y. Tribune, Inc., Markland, Liverpool, N. S., 1495 rolls; World Telegram, Markland, Liverpool, N. S., 1161 rolls; Bridgeport Herald, Markland, Liverpool, N. S., 125 rolls; Brooklyn Daily Eagle, Markland, Liverpool, N. S., 1104 rolls; Gilman Paper Co., Markland, Liverpool, N. S., 163 rolls; Perkins Goodwin & Co., Hamburg, Hamburg, 83 rolls; Jay Madden Corp., Hamburg, Bremen, 136 rolls; Lunham & Reeve, Inc., Hallaren, Kotka, 517 rolls; Jay Madden Corp., Hallaren, Kotka, 284 rolls.

PRINTING PAPER

H. Reeve Angel & Co., Inc., American Merchant, London, 1 cs.; International F'd'g Co., Black Heron, Antwerp, 6 cs.

WRAPPING PAPER

C. S. Allen Corp., American Merchant, London, 6 cs; Japan Paper Co., American Merchant, London, 4 cs.; Van Oppen & Co., Pr. van Buren, Genoa, 5 cs.

PACKING PAPER

Irving Trust Co., Hamburg, Hamburg, 12 cs.; ——, Pr. van Buren, Genoa, 50 bls.

FILTER COMPOUND

Gerhard & Hey, Hamburg, Hamburg, 24 crates.

FILTER PAPER

Oliver United Filters, Inc., American Merchant, London, 1 cs.; H. Reeve Angel & Co. Inc., American Merchant, London, 6 cs.

DRAWING PAPER

H. Reeve Angel & Co., Inc., American Merchant, London, 3 cs.

SURFACE COATED PAPER

Globe Shipping Co., Hamburg, Hamburg, 2 cs.; Gevaert Co., of America, Black Heron, Antwerp, 47 cs.

BASIC PAPER

P. Puttman, H. Jaspar Antwerp, 14 cs.

PHOTO PAPER

American Express Co., Hamburg, Hamburg, 46 cs.

DECALCOMANIAS

Sellers Transportation Co., Hamburg, Hamburg, 33 cs.; Sellers Transportation Co., Hamburg, Bremen, 2 cs.; Phoenix Shipping Co., Hamburg, Bremen, 1 cs.

TISSUE PAPER

Irving Trust Co., Kinai Maru, Kobe, 6 cs.

PARCHMENT PAPER

——, Hamburg, Bremen, 14 cs.

STENCIL PAPER

Chas. Happel, H. Jaspar, Antwerp, 5 cs.

CELLOPHANE

DuPont Cellophane Co., Inc., Pr. Lincoln, Manila, 71 cs.

LITHO PAPER

General Printing Ink Corp., Nako Maru, Canton, 15 cs.

PAPER BAGS

J. B. Mast & Co., Pr. van Buren, Genoa, 11 cs.

ENVELOPES

Gevaert Co., of America, Black Heron, Antwerp, 2 cs.

MISCELLANEOUS PAPER

Japan Paper Co., Pr. Lincoln, Kobe, 42 cs.; Corn Exchange Bank Trust Co., Belfast Maru, Kobe, 30 cs.; U. S. Envelope Co., Tai Ping Yokohama, 11 cs.; Moller Products Corp., Tai Ping, Yokohama, 8 cs.; ——, Pr. van Buren, Genoa, 14 cs.; Keller Dorian Paper Co., Pr. van Buren, Marseilles, 2 cs.

BAGS, BAGGINGS, ETC.

G. A. Henshaw & Sons, American Trader, London, 32 bls. paper stock; J. J. Ryan & Son, Belfast, Shanghai, 100 bls. cotton waste; Mitsui & Co. Ltd., Belfast, Shanghai, 462 bls. cotton waste; J. J. Ryan & Son, Belfast Maru, Kobe, 75 bls. cotton waste; Globe Shipping Co., Belfast Maru, Kobe, 10 bls. rags; P. J. Johnson Co., Belfast Maru, Yokohama, 13 bls. rags; ——, Volendam, Rotterdam, 188 bls. cotton waste; J. J. Ryan & Son, Nako Maru, Shanghai, 200 bls. cotton waste; G. A. Henshaw & Sons, Clairton, Belfast, 78 bls. paper stock; J. Cohen & Son, Antonia, Liverpool, 24 bls. paper stock; ——, Cold Harbor, Manchester, 110 bls. old pickers; ——, Winona County, Manchester, 100 bls. old pickers; Castle & Overton, Inc., Western World, B. Ayres, 533 bls. rags; Darmstadt Scott & Courntey, Black Heron, Antwerp, 529 bls. jute waste; Royal Manufacturing Co., Black Heron, Antwerp, 59 bls. jute waste; C. H. Powell & Co., Black Heron, Antwerp, 137 bls. cotton waste; H. J. Fawcett, Black Heron, Antwerp, 219 bls. jute waste; N. Schwab & Sons, Black Heron, Antwerp, 39 bls. cotton waste; Leigh Textile Co., Inc., Black Heron, Antwerp, 64 bls. cotton waste; E. J. Keller

Co., Inc., Black Heron, ——, 134 bls. paper stock; E. J. Keller Co., Inc., Exochorda, ——, 82 bls. paper stock; E. J. Keller Co. Inc., McKeesport, ——, 182 bls. paper stock.

GLUE STOCK, ETC.

——, Hamburg, Hamburg, 235 bags bone glue; ——, Hamburg, Hamburg, 125 bags hide glue.

WOOD PULP

Castle & Overton, Inc., Hamburg, Hamburg, 1375 bls. wood pulp, 275 tons; J. Anderson & Co., Hamburg, Hamburg, 150 bls. wood pulp, 25 tons; Castle & Overton, Inc., Volendam, Rotterdam, 300 bls. wood pulp; Castle & Overton, Inc., Hallaren, Wiborg, 1769 bls. wood pulp, 349 tons; Lagerloef Trading Co., Hallaren, Wasa, 9152 bls. ground pulp, 183 tons; Lagerloef Trading Co., Hallaren, Kotka, 2286 bls. ground pulp, 457 tons.

BOSTON IMPORTS

WEEK ENDING JANUARY 5, 1935

——, Antonia, Liverpool, 425 bags hide cuttings; G. F. Malcolm, Inc., Antonia, Liverpool, 3 cs. tissue paper; Brown Bros. Harriman & Co., Pr. van Buren, Genoa, 192 coils old rope.

NORFOLK IMPORTS

WEEK ENDING JANUARY 5, 1935

——, City of Newport News, Hamburg, 620 bls. wood pulp.

PHILADELPHIA IMPORTS

WEEK ENDING JANUARY 5, 1935

Castle & Overton, Inc., Rydboholm, Sweden, 1250 bls. wood pulp; J. Andersen & Co., Rydboholm, Sweden, 1250 bls. wood pulp; Price & Pierce, Ltd., Rydboholm, Sweden, 1050 bls. wood pulp.

WILMINGTON IMPORTS

WEEK ENDING JANUARY 5, 1935

Castle & Overton, Inc., Hallaren Wiborg, 8522 bls. wood pulp, 1704 tons.

CAMDEN IMPORTS

WEEK ENDING JANUARY 5, 1935

Lagerloef Trading Co., Hallaren, Wasa, 1600 bls. sulphate, 267 tons; Lagerloef Trading Co., Hallaren, Wiborg, 4322 bls. sulphate, 721 tons.

BALTIMORE IMPORTS

WEEK ENDING JANUARY 5, 1935

W. H. Masson, Cold Harbor, Liverpool, 276 bls. waste paper; Castle & Overton, Inc., Rydboholm, Sweden, 2875 bls. wood pulp; J. Andersen & Co., Rydboholm, Sweden, 4250 bls. wood pulp; Price & Pierce, Ltd., Rydboholm, Sweden, 1650 bls. wood pulp.

SAVANNAH IMPORTS

WEEK ENDING JANUARY 5, 1935

W. Garretson, Belfast Maru, Shanghai, 207 bls. bagging.

Shows Early Order for Newsprint

[FROM OUR REGULAR CORRESPONDENT]

HOLYOKE, Mass., January 8, 1935—John E. A. Hussey of Boston visiting the *Holyoke Transcript* last week brought with him a record of an order placed by that newspaper in 1882. The late William S. Loomis and William G. Dwight then were the proprietors of the paper. Mr. Hussey has been agent for the International Paper Company at Boston since it opened its office there in 1898.

Waplan Log Barking Drum

A decided development in the process of removing the bark from wood for making pulp and for sawing into lumber has been taking place in Sweden during the past two years.

Pulp mills in the United States and Canada have been using barking drums extensively for twenty years. These drums range from 8 feet to 12 feet in diameter and from 20 feet to 45 feet in length and handle wood cut in 4 to 5-foot lengths.

Ground wood pulp mills in Sweden have also utilized this type of barking drum. The high grade sulphite mills, however, have been reluctant to use short-wood drums, claiming that bark is lodged in the ends of the sticks. They prefer to bark full-length logs. The Waplan log barking drum has been developed for this purpose.

The Waplan drum is built in two types, intermittent and continuous. The intermittent type consists of a drum with an opening in the side for putting logs into the drum and dumping them out. The opening is equipped with an arrangement which keeps the logs from falling out during operation.

The drum is constructed of boiler plates, with U-bars on the inside. The ends, which are closed, are equipped with driving journals. This type has been built to handle logs up to 15 feet long. The continuous type consists of a series of open-end drums, partially submerged in a tank. The drums are suspended in chains which also rotate them. There is a feeding arrangement at the inlet end which throws the logs into the drum. This type will handle logs of any length as they lie parallel in the drum and move forward as it rotates.

One advantage of barking full-length logs is that the brooming of the ends which sometimes occurs on short wood is eliminated. Another is that better chips are produced by chipping the whole log, and at the same time the cost of sawing into short lengths and the wastage caused by such sawing is saved.

Continuous type Waplan drums have also been installed in sawmills in Sweden. The logs are barked before sawing, permitting the slabs to be converted into pulp directly without requiring a costly barking process.

The rights for the Waplan Log Barking Drum in America have been taken over by Fibre Making Processes, Inc., of Chicago, Ill., with Horton Steel Works, Ltd., of Fort Erie, Ontario, sub-licensee for Canada and Newfoundland.

"Numerals in Colors" for Recording

Readings of multiple-point instrument records is greatly simplified by a new system of "numerals in colors" introduced by Leeds & Northrup Company, Philadelphia. This marking system can be specified on Micromax strip-chart recorders for 2, 3, 4 or 6 points. With each of the thermocouples, resistance thermometer bulbs or other primary elements identified on the chart by a numeral, and each numeral distinguished from the others by being printed in a contrasting color, reading of records is made easy, errors are avoided and time is saved. Colors used for printing the numerals are: black, green, red, violet, yellow and blue.

The print-wheel on these Micromax Multiple-Point Recorders has a separate inking pad for each point to be recorded.

A circular giving further details and showing a reproduction of an actual chart in all six colors will be sent on request. Interested persons should address the above company and ask for Circular No. 314-I.

New York Market Review

Office of the PAPER TRADE JOURNAL,
Wednesday, January 9, 1935.

Sentiment in the local paper market is decidedly optimistic and the outlook for the New Year is generally considered promising. Demand for the various standard grades of paper is persistent. Sales forces of the leading paper organization are planning a strenuous campaign for orders. Prices are holding to schedule, in most instances.

The newsprint paper market is fairly buoyant now that the increased prices are in effect. With an increase of 7.8 per cent in total lineage of the New York and Brooklyn papers in December from that of December, 1933, figures compiled by Media Records, Inc., reveal the total lineage of these papers for the entire year was 8.9 per cent higher than the level of 1933.

Demand for the various grades of fine paper is satisfactory for the time of year. Book, bond, ledger and cover papers are moving freely. Prices are well sustained. Tissues are fairly active. The coarse paper market is showing signs of improvement and kraft specialties are in seasonal request. No radical changes have transpired in the board market.

Mechanical Pulp

The ground wood pulp market is steadier and no further price changes have been reported. Manufacturing operations in the United States, Canada and abroad are being maintained in sufficient volume to take care of current requirements, although accumulations are not excessive. Supplies are moving into consumption in moderate volume.

Chemical Pulp

Steadiness prevails in the chemical pulp market. Demand for the various domestic and imported grades is fairly satisfactory for the time of year. Kraft pulp is in a particularly strong position, with offerings rather scarce. Prices are generally holding to formerly quoted levels, and reports of shading are infrequent.

Old Rope and Bagging

The old rope market is practically marking time at present. Demand for both domestic and imported old manila rope is light. Small mixed rope is moving slowly. Old rope prices are fairly steady. The bagging market is displaying strength. Scrap and gunny bagging are in fairly good request. Roofing bagging is firmer.

Rags

Influenced by the inventory period the domestic rag market is rather quiet. Demand for new cotton rags is mainly routine. No. 1 white shirt cuttings are still arousing some export interest. Roofing rags are generally steady to firm. The position of the imported rag market is practically unchanged, with quotations nominal.

Waste Paper

The higher grades of paper stock are exhibiting a strong undertone, including hard and soft white shavings and hard white envelope cuttings. Book stock is somewhat steadier than of late. Board mill demand for the lower grades is listless, but should improve materially following the end of the inventory period. The price situation is still involved.

Twine

Although demand for the various varieties of twine has fallen off now that the holidays are over the market is more active than usual at this time of year. The view is expressed that the current year will prove a good one, with generally business conditions gradually improving. Prices are generally holding to formerly quoted levels.

Purification of Library Air

Relative to studies made by the National Bureau of Standards, which proved sulphur dioxide in the air to be harmful to record material stored in libraries, and that the injurious gas could be completely removed from the air, the following is quoted from the 1933 Report of the Director of the Folger Shakespeare Library, Washington, D. C.

The Superintendent of Building and Grounds, Mr. William S. Tyler, 3d, reports that the recommendations of the Bureau of Standards for the removal of the sulphur dioxide content of the air "breathed" by the collections of the Library are now in effect. The result of the investigations into this subject, made by the representatives of the Bureau of Standards, Mr. Arthur E. Kimberly and Miss Adelaide L. Emley, with the cooperation of engineers from the Carrier Engineering Company, and the Metropolitan Refining Company, with the Folger Shakespeare Library as the laboratory for the investigation, are digested in an article on "Removal of sulphur dioxide from library air," contributed by Dr. L. Bendikson, of the Huntington Library, to the Library Journal for March 15, 1934, Dr. Bendikson writes:

The importance of the results of this research is unquestionable. Not all libraries may be in the situation to install apparatus for the elimination of sulphur dioxide from the air, but the injurious action of atmospheric acids on books and manuscripts and the possibility of their elimination should be brought to the attention of all that have an interest in the preservation of documents.

I. F. Kahn Expresses Optimism

[FROM OUR REGULAR CORRESPONDENT]

INDIANAPOLIS, Ind., January 7, 1935—Optimism over prospects for increasing business in 1935 was expressed recently by I. F. Kahn, president of the Capitol-Standard Paper Companies here, before a two-day general sales meeting of the companies. He said business had been excellent during the past year and that every indication of improvement was apparent for the year to come. S. C. Kahn, secretary-treasurer, spoke on the credit situation, which he said was improving. Branch managers and their sales representatives from many cities of Indiana attended and fourteen representatives of larger paper mills were guests. A banquet closed the meeting.

Miscellaneous Markets

Office of the PAPER TRADE JOURNAL,
Wednesday, January 9, 1935.

BLANC FIXE.—The blanc fixe market is moderately active. Prices are holding to previously quoted levels. The pulp is selling at from $42.50 to $45 per ton, in bulk; while the powder is offered at from 3½ cents to 3¾ cents per pound, in barrels, at works.

BLEACHING POWDER.—Demand for bleaching powder is listless at present. The contract movement is about average for the season. Prices remain steady and unchanged. Bleaching powder is quoted at from $1.90 to $2.15 per 100 pounds, in drums, at works.

CASEIN.—The casein market is slightly firmer. Domestic standard ground is now quoted at 10½ and finely ground at 11¼ cents per pound; while Argentine standard ground is offered at 13½ and finely ground at 14 cents per pound, all in bags, car lot quantities.

CAUSTIC SODA.—Trading in the caustic soda market is fairly active. Prices are generally holding to schedule. Solid caustic soda is quoted at from $2.60 to $3.10; while the flake and ground are selling at from $3 to $3.05 per 100 pounds, in large drums, at works.

CHINA CLAY.—The position of the china clay market is practically unchanged. Prices are steady to firm. Imported china clay is quoted at from $13.50 to $21 per ton, ship side; while domestic paper making clay is selling at from $6.50 to $12 per ton, at works.

CHLORINE.—Although the chlorine market is quiet, the industry is exhibiting a strong undertone. Prices are holding to schedule without difficulty. Chlorine is quoted at from $2 to $2.40 per 100 pounds, in tanks, or multi-unit cars, in ton lots, or over, at works.

ROSIN.—The rosin market is firm. Paper making gum rosin is still quoted at $4.50 and FF wood rosin at $4.30 per 280 pounds, gross weight, in barrels, at Savannah. Seventy per cent rosin size is selling at $2.60 per 100 pounds, in tank cars, at works.

SALT CAKE.—The salt cake market is marking time following a good year. Prices are steady. Salt cake is quoted at from $12 to $13 and chrome salt cake at from $11 to $12 per ton, at works. Imported salt cake is selling at from $12 to $13 per ton, on dock.

SODA ASH.—Paper mill demand for soda ash is fairly persistent. The contract movement is well up to average. Prices are firm. Quotations on soda ash, in car lots, at works, per 100 pounds, are as follows: in bulk, $1.10; in bags, $1.40; and in barrels, $1.50.

STARCH.—The starch market is devoid of any radical changes. Contract shipments are going forward regularly. Prices remain unchanged. Special paper making starch is quoted at $3.75 per 100 pounds, in bags; and at $3.84 per 100 pounds, in barrels, at works.

SULPHATE OF ALUMINA.—Conditions in the sulphate of alumina market are satisfactory. Prices are unchanged. Commercial grades are quoted at from $1.35 to $1.50; while iron free is selling at from $1.90 to $2.05 per 100 pounds, in barrels, at works.

SULPHUR.—The sulphur market continues steady. Sulphur is quoted at $18 per long ton on orders of 1,000 tons, or over, on yearly contracts; and at $20 per ton on any smaller quantity over that period. On spot and nearby car loads the quotation is $21 per ton.

TALC.—Business in the talc market has fallen off, due to the holidays, but should improve in the near future. Domestic talc is still quoted at from $16 to $18 per ton, at eastern mines; while imported talc is selling at from $23 to $30 per ton, on dock.

Market Quotations

Paper

(F. o. b. Mill)

Ledgers	6.50	@	—
Bonds	6.00	@	—
Index	6.00	@	—
Writings—			
Extra Superfine	6.50	@	—
Superfine	6.25	@	—
Tub sized	5.75	@	—
Engine sized	5.50	@	—
Book, Cased—			
S. & S. C.	5.35	@	5.75
S. & S. C. Litho.	5.60	@	6.00
M. F.	5.10	@	5.50
Coated and Enamel	5.90	@	6.55
Coated Litho	5.90	@	6.55
Tissues—Per Ream—			
White No. 1	.82½	@	.85
White No. 2	.67½	@	—
Anti-Tarnish M. G. only	1.00	@	—
Colored	.85	@	—
Kraft	.70	@	—
Manila	.67½	@	.70
Manila—			
No. 1 Jute	9.00	@	9.25
No. 2 Jute	7.75	@	8.50
No. 1 Wood	4.00	@	5.25
No. 2 Wood	3.50	@	4.00
Butchers	4.00	@	4.50
Fibre Papers—			
No. 1 Fibre	4.25	@	5.50
No. 2 Fibre	4.00	@	4.75
Common Bogus	1.50	@	3.00
Screenings	2.50	@	3.50
Glassine—			
Bleached	.11	@	—
Unbleached	.09	@	—

(The following Quotations are Delivered New York)

News, per ton—			
Roll, contract	42.50	@	—
Rolls, spot	42.50	@	—
Sheets	47.50	@	—
Kraft—			
No. 1 Domestic	4.75	@	5.00
No. 2 Domestic	3.87½	@	—
Southern	3.87½	@	—
Boards—per ton—			
News	40.00	@	45.00
Chip	37.50	@	40.00
Sgl. Mla. Ll. Chip	47.50	@	52.50
Jute Lined Chip	47.50	@	52.00
White Patent Coated	60.00	@	65.00
Binders Boards	67.00	@	75.00

Mechanical Pulp

(On Dock, Atlantic Ports)

No. 1 Imported—		
Moist	21.00	@22.00
Dry	21.00	@22.00
(F.o.b. Mill)		
No. 1 Domestic and Canadian	18.00	@24.00

Chemical Pulp

(On Dock, Atlantic, Gulf and West Coast Ports)

Bleached Sulphite (Domestic and Foreign)—			
Division 1	2.85	@	—*
Division 2	2.80	@	—*
Division 3	2.75	@	—*
Prime Qualities—			
Class 1. All Prime Easy Bleaching	2.25	@	—*
Other Than Easy Bleaching—			
Class 2. Higher Than Standard	2.20	@	—*
Class 3. Standard	2.15	@	—*
Class 4. Lower than Standard	2.10	@	—
(On Dock, Atlantic Ports)			
Kraft No. 1	1.65	@	1.75
Kraft No. 2	1.50	@	1.60
(F.o.b. Pulp Mill)			
Kraft Domestic	1.60	@	2.25
(Delivered)			
Soda Bleached	2.50	@	—

*Add 60 Cents per short ton, dock charges, for Albany; $2.00 for Lake Ports East and $3.00 for Lake Ports West of Mackinac Straits.

Domestic Rags

New Rags

(Prices to Mill f. o. b. N. Y.)

Shirt Cuttings—			
New White, No. 1.	5.75	@	6.00
Silesias No. 1	3.75	@	4.00
New Unbleached	6.25	@	6.50
New Soft Blacks	3.00	@	3.25
Blue Overall	3.50	@	3.75
Fancy	2.50	@	2.75
Washables	1.75	@	2.00
Mixed Khaki Cuttings	3.00	@	3.25
O. D. Khaki Cuttings	3.75	@	4.00
Men's Corduroy	1.50	@	.75
New Mixed Blacks	2.50	@	2.75

Old Rags

White, No. 1—			
Repacked	3.00	@	3.50
Miscellaneous	2.75	@	3.25
White, No. 2—			
Repacked	1.75	@	2.25
Miscellaneous	1.50	@	1.75
Thirds and Blues—			
Repacked	1.50	@	1.75
Miscellaneous	1.25	@	1.50
Black Stockings	2.50	@	3.00
Roofing Rags—			
No. 1	1.10	@	1.25
No. 2	.80	@	.85
No. 3	.70	@	.75
No. 4	.65	@	.70
No. 5A	.60	@	.65

Foreign Rags

New Rags

New Dark Cuttings	1.60	@	1.70
New Mixed Cuttings	1.75	@	1.85
New Light Silesias	3.75	@	4.00
Light Flannelettes	3.75	@	4.00
Unbleached Cuttings	6.50	@	6.75
New White Cuttings	6.50	@	6.75
New Light Oxfords	3.25	@	3.50
New Light Prints	2.75	@	3.00

Old Rags

No. 1 White Linens	7.50	@	8.00
No. 2 White Linens	6.50	@	7.00
No. 3 White Linens	4.50	@	5.00
No. 4 White Linens	2.25	@	2.50
No. 1 White Cotton	4.25	@	4.75
No. 2 White Cotton	3.25	@	3.75
No. 3 White Cotton	2.50	@	2.75
No. 4 White Cotton	1.90	@	2.15
Extra Light Prints	2.00	@	2.25
Ord. Light Prints	1.75	@	1.85
Med. Light Prints	1.55	@	1.65
Dutch Blue Cottons	1.75	@	1.85
French Blue Linens	2.30	@	2.40
German Blue Linens	2.15	@	2.25
German Blue Cottons	1.70	@	1.80
Checks and Blues	1.30	@	1.40
Linsey Garments	1.40	@	1.60
Dark Cottons	1.00	@	1.10
Old Shopperies	.95	@	1.00
New Shopperies	.90	@	1.00
French Blues	1.70	@	1.80

Old Rope and Bagging

(Prices to Mill f. o. b. N. Y.)

Gunny No. 1—			
Foreign	1.50	@	1.60
Domestic	1.40	@	1.50
Wool Tares, light	1.20	@	1.30
Wool Tares, heavy	1.20	@	1.30
Bright Bagging	1.15	@	1.25
Manila Rope—			
Foreign	1.85	@	2.00
Domestic	1.75	@	2.00
Small Mixed Rope	1.10	@	1.35
New Burlap Cut	2.00	@	2.25
Hessian Jute Threads—			
Foreign	2.60	@	2.75
Domestic	2.80	@	3.00

Old Waste Papers

(F. o. b. New York)

Shavings—			
White Envelope Cuttings	2.70	@	2.80
Ordinary Hard White No. 1	2.15	@	2.25
Hard White No. 2	1.95	@	2.05
Soft White No. 1	1.85	@	1.95
Flat Stock—			
Stitchless	.65	@	.75
Over issue Mag.	.65	@	.75
Solid Flat Book	.55	@	.60
Crumpled No. 1	.40	@	.45
Solid Book Ledger	1.50	@	1.65
Ledger Stock	1.00	@	1.10
New B. B. Chips	.30	@	.35
Manilas—			
New Env. Cut	1.70	@	1.80
New Cuttings	1.35	@	1.45
Print	Nominal		
Bogus Wrapper	.40	@	.50
Container	Nominal		
Old Kraft Machine—			
Compressed bales	1.10	@	1.30
News—			
No. 1 White News	1.20	@	1.30
Strictly Overissue	.65	@	.70
Strictly Folded	Nominal		
No. 1 Mixed Paper	Nominal		

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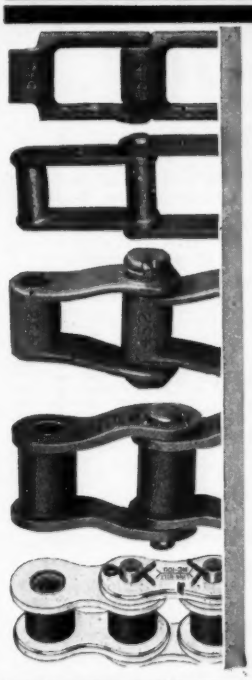
LINK-BELT *Chains*



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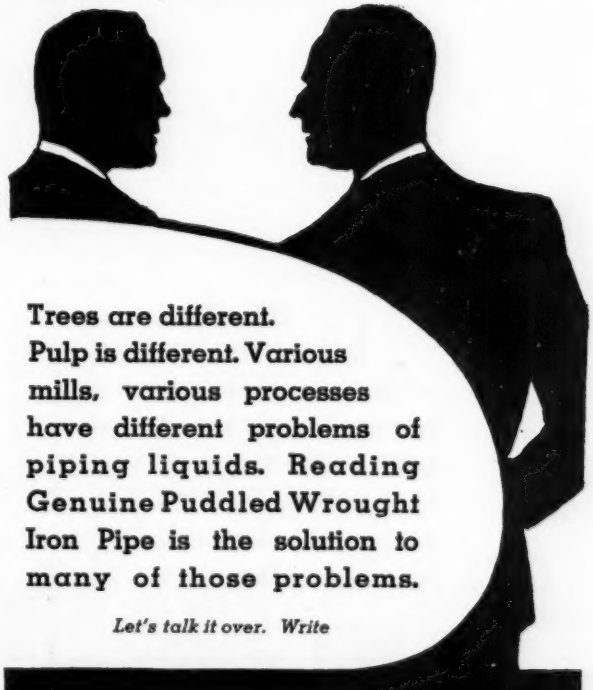

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Twines
(F. o. b. Mill)

Coarse Polished—			
India	.11¼	@	.13¼
Belg. White Hemp	.12¼	@	.15¼
India Compres....	.11¼	@	.12¼
Fine Polished—			
Fine India	.16	@	.20
Special	.16	@	.18
B. C.	.25½	@	.27½
Unpolished—			
Box	.10	@	.10½
Paper Makers	.07	@	.11½
Tube Rope	.08	@	.13½
Wall Paper	.09	@	.12½
Wrapping	.12	@	.17
Special	.12	@	—
Soft Fiber Rope	.10¼	@	.10¼

CHICAGO

Paper
(F. o. b. Mill)

Rag Bond	.12	@	.50
Water Marked Sulphite Bond	.06¼	@	.11
Sulphite Bond	.05½	@	.11
Superfine Writing	.18	@	.24
No. 1 M. F. Book	.06½	@	.07¼
No. 2 M. F. Book	.05¼	@	.06¼
No. 1 S.&S.C. Book	.06¼	@	.07¼
No. 2 S.&S.C. Book	.05¼	@	.06½
Coated Book	.07	@	.12
Coated Label	.07	@	.08½
No. 1 Manila	.04¼	@	.05¼
No. 1 Fibre	.04¼	@	.05¼
No. 2 Manila	.04¼	@	.04¼
Butcher's Manila	.03¼	@	.03¼
No. 1 Kraft	4.75	@	5.00
Southern Kraft	3.88	@	4.25
No. 2 Kraft	3.88	@	4.25
Wood Tag Boards	.04¼	@	.06¼
Sulphite Screenings	.03	@	.03¼
Manila Tissue	.05¼	@	.07
White Tissue	.07	@	.09

(Delivered Central Territory)

News per ton—			
Rolls, contract	43.50	@	—
Sheets, open	48.50	@	51.00
Boards, per ton—			
Plain Chip	46.50	@	—
Solid News	50.00	@	—
Manila Lined Chip	55.00	@	—
Patent coated	65.00	@	—
Container Lined—			
85 Test, per 1000 sq. ft.			1.70
100 Test, per 1000 sq. ft.			1.85

Old Papers
(F. o. b. Chicago)

Shavings—			
No. 1 White Envelope cuttings	1.70	@	2.00
No. 1 Hard White	1.40	@	1.65
No. 1 Soft White	1.25	@	1.50
Ledger & Writings	.70	@	.80
Solid Books	.60	@	.70
Blanks	1.00	@	1.05
Krafts	.80	@	.90
New Kraft Cuts	1.20	@	1.30
Manila Env. Cuts	1.25	@	1.30
Ex. No. 1 Manila	.90	@	1.00
Print Manila	.40	@	.50
Overissue News	.40	@	.45
Old Newspapers—			
No. 1	.30	@	.35
Mixed Papers—			
No. 1	.15	@	.20
Roofing Stocks—			
No. 1	30.00	@	—
No. 2	28.00	@	—

PHILADELPHIA

Paper
(Delivered Philadelphia)

Bonds	.05-9/10	@	.38
Ledgers	.06 9/10	@	.40
Writings—			
Fine No. 3	.05	@	.06
Superfine	.10	@	.18
Extra Fine	.15	@	.20
Fine	.15	@	.25
Fine, No. 2	.10	@	.25
Book, M. F.	.05¼	@	.06¼
Book, S. S. & C.	.05	@	.07½
Book, Coated	.06½	@	.09
Coated Lithograph	.06¼	@	.08½
Label	.07	@	.11
No. 1 Jute Manila	6.25	@	—
Manila Sul., No. 1	5.25	@	—
Manila No. 2	3.00	@	—
No. 1 Kraft	5.00	@	—
Southern Kraft	4.75	@	—
Common Bogus	.03	@	.04½
News Print Rolls	41.50	@	—
Straw Board	40.00	@	45.00
News Board	50.00	@	—
Chip Board	45.00	@	—
Wood Pulp Board	70.00	@	85.00
Binder Boards—			
No. 1, per ton	75.00	@	80.00
No. 2, per ton	70.00	@	75.00
Carload lots	65.00	@	70.00
Tarred Felts—			
Regular	52.25	@	54.25
Slaters (per roll)	.84	@	.94
Best Tarred, 1-ply (per roll)	1.95	@	2.10
Best Tarred, 2-ply (per roll)	1.50	@	1.65
Best Tarred, 3-ply	2.00	@	2.25

Domestic Rags (New)
(Price to Mill, f. o. b. Phila.)

Shirt Cuttings—			
New White, No 1.	03½	@	.04
New White, No. 2.	02½	@	.04
Light Silesias	02½	@	.03
Silesias, No. 1	.03	@	.03½
Black Silesias, soft	02½	@	.03
New Unbleached	.05	@	.05½
Washable, No. 1	.01½	@	.02
Blue Overall	03½	@	.04
Cottons—According to grades—			
Washable, No. 2	.02½	@	.03
New Blue	.01½	@	.03
Fancy	.01½	@	.03
New Black Soft	.02	@	.04
New Light Seconds	.01½	@	.02
New Dark Seconds	1.50	@	1.75
Khaki Cuttings—			
No. 1 O.D.	.03	@	.04
No. 2 Mixed	.03	@	.04
Corduroy	.02	@	.03
New Canvas	.03½	@	.04½
New Black Mixed	.02½	@	.03½

Domestic Rags (Old)

White No. 1—			
Repacked	2.50	@	3.50
Miscellaneous	1.75	@	2.25
M. G.	3.00	@	3.75
Thirds and Blues—			
Miscellaneous	1.00	@	1.50
Repacked	1.50	@	2.00
Black Stockings (Export)	2.00	@	3.50
Roofing Stock—			
Foreign No. 1	.50	@	.75
Repacked	.70	@	.85

Bagging
(F. o. b. Phila.)

Gunny, No. 1—			
Foreign	1.25	@	1.50
Domestic	1.50	@	1.75
Manila Rope	2.00	@	2.25
Sisal Rope	1.25	@	1.50
Mixed Rope	1.00	@	1.10
Scrap Burlaps—			
No. 1	1.25	@	1.50
No. 2	.80	@	1.00
Wool Tares, heavy	2.75	@	—
Mixed Strings	1.15	@	1.25
No. 1 New Light Burlap	2.25	@	2.50
New Burlap Cuttings	2.00	@	2.25

Old Papers
(F. o. b. Phila.)

Shavings—			
No. 1 Hard White	2.25	@	2.30
No. 2 Hard White	1.90	@	2.00
No. 1 Soft White	1.80	@	1.85
No. 2 Soft White	1.25	@	1.30
No. 1 Mixed	—	@	.75
Solid Ledger Stock	1.50	@	1.60
Writing Paper	1.00	@	1.10
No. 1 Books, heavy	.55	@	.60
No. 1 New Manila	1.35	@	1.40
Print Manila	.50	@	.60
Container Manila	.45	@	.50
Old Kraft	1.15	@	1.20
No. 1 Mixed Paper	.32½	@	—
Straw Board Chip	.30	@	—
Binders Board Chip	.30	@	—
Corrugated Board	.50	@	—
Overissue News	.60	@	—
Old Newspapers	.42½	@	—

BOSTON

Paper
(F. o. b. Mill)

Ledgers—			
Sulphite	.04	@	.12½
Rag Content	.12	@	.30
All Rag	.36	@	.52½
Bonds—			
Sulphite	.07¼	@	.11
Rag Content	.12	@	.30
All Rag	.36	@	.65
Writings	.06½	@	.20
Superfines	.11	@	.31
Book, Super	.06	@	.09
Book, M. F.	.05½	@	.08½
Book, Coated	.08½	@	.18
Coated Litho	.09	@	.12
Label	.09½	@	.15
Jute Manila No. 1	.11	@	.13
Manila, Sul. No. 1	.04¼	@	.06½
Manila, Sul. No 2	.03¼	@	.04½
No. 1 Kraft	.04¼	@	.05
No. 2 Kraft	.03½	@	.04¼

(F. o. b. Boston)

Southern Kraft	.03¾	@	.04¼

(F. o. b. destination in carload lots, f. o. b. mill in less than carload lots.)

Common Bogus	.02	@	.02¼

(Delivered New England points)

News Print Rolls	42.00	@	—
Straw Board, rolls	.009	—	@35.00
Straw Board in Sheets, basis 35s to 70s	—		@40.00
Filled News Board	40.00		@45.00
Chip Board	37.50		@40.00
Chip Board (Creasing)	37.50		@40.00
Single Manila Lined Chip	47.50		@52.50
Single White, Patent Coated News Board (Bender)	57.50		@65.00
Wood Pulp Board	70.00		@75.00
Binder Boards (Standard Grade)	67.00		@75.00

Old Papers
(F. o. b. Boston)

Shavings—			
No. 1 Hard White	2.00	@	2.20
No. 1 Soft White	1.75	@	1.90
No. 2 Mixed	.75	@	.80
Solid Ledger Books	1.75	@	—
Overissue Ledger Stock	1.15	@	1.30
Mixed Ledgers	.95	@	1.05
No. 1 Books, heavy	.50	@	.60
No. 1 Books, light	.55	@	.65
Crumpled Stitchless Book Stock	.50	@	.60
Manila Env. Cuttings	1.25	@	1.30
No. 1 Old Manila	.50	@	.55
White Blank News	1.20	@	1.25
No. 1 Kraft	.85	@	.95
No. 1 Mixed Papers	.20	@	.25
Print Manila	.40	@	.45
Overissue News	.45	@	.50
Old Newspapers	.25	@	.35
Box Board Chips	..	@	.25
Corrugated boxes	.25	@	.32½
Screening Wrappers	.45	@	.55

Bagging
(F. o. b. Boston)

Manila Rope—			
Foreign	1.75	@	1.90
Domestic	1.90	@	2.00
Transmission Rope	.90	@	1.00
Mixed Strings	.17½	@	.20
Jute Rope	1.35	@	1.40
Jute Carpet Threads	.65	@	.70
Gunny No. 1—			
Foreign	1.50	@	1.60
Domestic	1.15	@	1.20
Bleachery Burlap	4.00	@	4.50
Scrap Burlap	1.05	@	1.10
Scrap Sisal	1.00	@	1.10
Scrap Sisal for Shredding	1.10	@	1.25
Wool Tares, heavy	1.25	@	1.30
New Burlap Cuttings	1.45	@	1.50
Australian Wool Pouches	2.00	@	2.25
Heavy Baling Bagging	1.40	@	1.50
Paper Mill Bagging	.90	@	1.10
Bagging No. 2	.50	@	.55

Domestic Rags (New)
(F. o. b. Boston)

Shirt Cuttings—			
New Light Prints	.01¾	@	.02
New White No. 1.	.05½	@	.06
New White No. 2.	.03½	@	.04
Silesias No. 1	.04	@	—
New Black Silesias	.02½	@	.03
New Unbleached	.05½	@	.06
Blue Cheviot	—	@	4.65
Fancy	.0185	@	.0195
Washable	.0165	@	.0170
Cottons—According to grades—			
Blue Overalls	—	@	.03¾
New Black, soft	.04	@	.04
Khaki Cuttings	.03¾	@	.03½
O. D. Khaki	.03	@	.03¾
Corduroy	.01¾	@	.02
New Canvas	—	@	.05
B.V.D. Cuttings	—	@	.06¾

Domestic Rags (Old)
(F. o. b. Boston)

Canvas	.04½	@	—
White No. 1—			
Repacked	.—	@	3.00
Miscellaneous	2.50	@	2.75
White No. 2—			
Repacked	2.00	@	2.75
Miscellaneous	2.00	@	2.25
Twos and Blues	1.25	@	1.50
Thirds and Blues			
Repacked	2.00	@	2.75
Miscellaneous	2.00	@	2.25
Black Stockings	2.50	@	3.00
Roofing Stock			
No. 1	.90	@	1.00
No. 2	.75	@	.80
No. 3	.60	@	.65

Foreign Rags
(F. o. b. Boston)

Dark Cottons	1.00	@	1.00
New White Shirt Cuttings	5.50	@	6.00
Dutch Blues	2.00	@	2.50
New Checks & Blues	2.50	@	3.00
Old Fustians	1.55	@	1.60
Old Linsey Garments	1.25	@	1.35

TORONTO

Paper
(F. o. b. Mill)

Bond—			
No. 1 Sulphite	.10¾	@	—
No. 2 Sulphite	.08½	@	—
No. 1 Colored	.10¾	@	—
No. 2 Colored	.09	@	.10
Ledgers (sulphite)			
Ledgers, No. 1	.34½	@	—
Ledgers, No. 2	.25½	@	—
Writing	.09	@	.09¾
Book—			
No. 1 M. F. (Carloads)	6.20	@	—
No. 3 M. F. (Carloads)	5.70	@	—
No. 4 M. F. (carloads)	4.75	@	—
No. 1 S. C. (carloads)	6.65	½	—
No. 3 S. C. (carloads)	6.20	@	—
No. 4 S. C. (carloads)	5.20	@	—
No. 1 Coated and Litho	12.00	@	—
No. 2 Coated and Litho	10.50	@	—
No. 3 Coated and Litho	9.50	@	—
Coated tinted	14.00	@	—
Wrapping—			
Rag Brown	4.25	@	—
White Wrap	2.22½	@	—
"B" Manila	4.75	@	—
No. 1 Manila	5.25	@	—
Fiber	5.25	@	—
Kraft, M. F.	5.75	@	—
Kraft No 2	5.25	@	—

(F.O.B. Cars Toronto)

News, per ton—			
Rolls (contract)	39.50	@	—
Sheets	44.50	@	—

Pulp
(F. o. b. Mill)

Ground Wood	18.00	@	20.00
Sulphite easy bleaching	40.00	@	—
Sulphite, news grade	38.00	@	—
Sulphite, bleached	50.00	@	55.00
Sulphate	50.00	@	—

Old Waste Paper
(In carload lots, f. o. b. Toronto)

Shavings—			
White Env. Cut	2.00	@	2.30
Soft White	1.60	@	1.90
White Blk. News	1.25	@	1.40
Book and Ledger—			
Flat Magazine and Book Stock (old)	.90	@	1.00
Light and Crumpled Book Stock	.80	@	.90
Ledgers and Writings	1.00	@	1.05
Manilas—			
New Manila Cut	1.25	@	1.50
Printed Manilas	.70	@	.80
Kraft	1.25	@	1.50
News and Scrap—			
Strictly Overissue	.80	@	—
Strictly Folded	.60	@	—
No. 1 Mixed Paper	.50	@	—

Domestic Rags
(Price to mills, f. o. b. Toronto)

No. 1 White Shirt Cuttings	.06	@	.06¼
Fancy Shirt Cuttings	.02¼	@	.02½

BENNETT

TRADE MARK

ROSIN-WAX SIZE

THE TREND OF THE TIMES

A Survey of Domestic Demands for Naval Stores for 1935 published recently by the Naval Stores Review contains the following information which should be of remarkable interest to the paper industry:

"As is generally known, the paper industry for a period of years was the largest individual industry in the consumption of rosin, and showed up to 1934 a tendency to expand its uses of that commodity. However, 1934 all reports indicate, showed a very heavy let-down in the use of papers on which rosin sizing was used . . ."

"In one particular specialized branch, that is the manufacture of rosin-wax sizes, the total volume of business in 1934 is said to have run considerably ahead of 1933, with the comment that in these special sizes the tendency was toward a greater consumption of wax in proportion to rosin . . ."

Many will be surprised to learn that the demand for rosin-sized papers is decreasing so rapidly. Yet this is to be expected with the constantly increasing use of Bennett Rosin-Wax Sizes, and the appearance on a highly competitive paper market of thousands of tons of paper having superior qualities, unobtainable with rosin size. When it is considered that Bennett Rosin-Wax Sizes have also proved more economical than rosin size, this trend away from rosin-sized papers is not in the least surprising; it is merely the result of common sense reasoning.

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TABLE OF CONTENTS

Government Wants 16,255,000 Pounds of Paper	13
M. W. Wilson Analyzes Newsprint Situation..	14
To Develop Forest Resources	14
Paper Service Meet at Holyoke	14
Sutherland Paper Co. Buys Fiber Can Plant	16
Holyoke Wire Cloth Co. Expands	16
Ontario Acts to Prevent Timber Waste	16
Safety Meeting Arranged	18
Proposed Labor Legislation	18
Philadelphia Paper Market Looks Brighter	21
Association Activities	21
Paper Men Attend Price Hearing	22
Boston Paper Trade Happenings	26
Big Pulp Shipments to Japan	26
Lake States TAPPI Discuss Gears	27
Boston Paper Market Active	28
Flood Stage Handicaps Mills	28
Heavy Pulp Shipments Arrive at Albany	28
Fred J. Rooney with Merritt	28
McElwain Club Elects Officers	28
Obituary	29
Editorial	32
Fire Damages Toledo Paper Stock Co.	33
Canadian Technical Meeting	33
Delaware Valley TAPPI to Meet	33
New England TAPPI to Meet	33
Fire Sweeps Jersey Paper Plant	33
Technical Section	
Certified Stains for Fiber Differentiation	35
The "Stock-Maker" Precision Laboratory Beater	36
A Mill Test for the Exact Determination of Combined Sulphur Dioxide	38
The Influence of the Head Box and Slice on Sheet Formation	40
Operating Practice in Switching and Power Distribution in Pulp and Paper Mills	45
Imports of Paper and Paper Stock	47
New York Market Review	49
Miscellaneous Markets	50
Market Quotations	50

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Want and For Sale Advertisements, 54-55

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